THE IMPACT OF URBANIZATION ON FERTILITY IN INDIA

CALEB R. PAULUS

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PUBLISHERS' NOTE

It gives us immense pleasure to present to the public "The Impact of Urbanization on Fertility in India" by Dr. C. R. Paulus. We are grateful to Dr. Paulus for kindly permitting us to publish his Doctoral Thesis submitted to the University of Oregon, U. S. A.

We are also grateful to the authorities of the *University Grants Commission* for their generous financial aid which has made it possible for us to publish this book.

Mysore
25-3-1966

Prabhu Shankara
Director

PREFACE

Urbanization has been instrumental in ushering a new era of revolutionary changes in all aspects of Indian society. India's over-population poses a challenge to us and currently it has reached a crucial stage. Any favourable demographic change specially with regard to fertility is our cherished and expected goal

The impact of urbanization on fertility in India which is analyzed in the following pages, will be of concern and interest, it is hoped, not only to sociologists, demographers, and planners but to laymen as well. Several areas in this field are yet to be explored and covered by empirical studies. I believe that in the coming years sustained interest will be shown by Indian scholars and universities to promote as well as to embark on further studies and research on the significant demographic changes or urbanization.

This work is a thesis submitted and approved for the Ph. D. degree of the University of Oregon, U.S.A. I wish to record my sincere appreciation and grateful thanks to Dr. Walter T. Martin, the Chairman of the Department of Sociology, University of Oregon, under whose guidance the thesis was written. He has shown deep interest in the study and gave me valuable assistance and suggestions.

I am grateful to the University Grants Commission and the University of Mysore for undertaking the publication of the thesis.

Bangalore
March 21. 1966.

C. R. Paulus

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CHAPTER I

THE NATURE AND PURPOSE OF THE STUDY

Urbanization and Fertility

Urbanization is a manifestation of modern civilization. In the West the industrial city emerged as a functional center of economic and social organization during the nineteenth century after the industrial revolution. Industrialization with its attendant innovation, technological development and increased production accompanied by specialization and division of labor added momentum to urbanization. As a revolutionary movement, urbanization has wrought changes in every aspect of man's life.

In the industrially advanced countries of Europe, in England and the United States of America, when urbanization followed industrializaton, there was an appreciable decline in urban as well as in total fertility. According to Karpinos, "The white population of the U.S. had practically reached a stationary rate of growth in 1930, if only fertility is considered."[1] Some of the industrial countries were even concerned about their declining or stationary population. It has been observed that the decline sets first in the urban areas among selected groups or classes, the upper, professional and the educated and then spreads to the rest of the population. Population studies indicate a clear and definite rural-urban differential fertility. The more an area is urbanized, the lower its fertility. Cities having a large agglomeration of population have the lowest fertility. Having examined thirteen countries in Europe, Asia, Africa and

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1 Karpinos, Bernard., "The Differential True Rates of Growth of the White Population in the United States and Their Probable Effects on the General Growth of the Population," *The American Journal of Sociology*, Vol. 44, No. 2, (September, 1938), p. 251.

the Americas and studied thirty-one separate population groups, Jaffe found that the rural fertility rate was substantially higher than the urban rate in all urban groups except one.[2] Woofter's analysis of the fertility data in the United States between 1910 and 1940 revealed a similar differential and that the gap was widening.[3]

After a geographical analysis of the declining birth rate in the United States, Smith concludes, "The only factor in common to all of these areas in which the rate of reproduction has remained high is their geographical and cultural isolation. These illustrations make it evident that in this country the fall in the birth rate was first a function of the developing urban way of life, that as urbanization and industrialization proceeded a depressing effect on the birth rate was exerted, and that only in areas most rural and most removed from urban influences has the birth rate maintained its former high level."[4] In his pioneering studies of India's population, Davis discovered rural-urban differential fertility between 1921 and 1941. He says, "A fertility differential exists not only between rural and urban areas but also between larger and smaller cities. In general, as measured by the child-woman ratio, reproduction varies inversely with the size of the city."[5] This differential fertility is suggestive of a concomitant negative relationship between urbanization and fertility. The general purpose of this study is to determine the extent to which urbanization has had this impact on the fertility of the population of India for the period 1931 to 1951.

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2 Jaffe, A. J., "Urbanization and Fertility," *The American Journal of Sociology*, Vol. 48, No. 1, (July, 1942); pp. 48-60.

3 Woofter Jr., T.J., "Trends in Rural and Urban Fertility Rates," *Rural Sociology*,, Vol. 13, No. 1, (March, 1958), p. 4.

4 Smith, T. Lynn., *Population Analysis*, (New York : McGraw-Hill Book Company Inc., 1948), p. 230.

5 Davis, Kingsley., *The Population of India and Pakistan* (Princeton, New Jersey ; Princeton University Press, 1951), p. 71.

Urbanization and Social Change

There are basic differences between urban and rural ways of life. Some social scientists have postulated polarized typologies of the urban and the rural. In his "Urbanism as a Way of Llfe," Wirth expounds the theory that the three fundamental characteristics which mould an urban social order are size, density, and heterogeneity.[6] They not only form the fabric of an urban setting but they modify and change those who come within this environment. The urban setting, therefore, with a character of its own has evolved a new way of life and it is also an instrument of change.

Technological development, changes in the methods of production, specialization and division of labour, and a new economic structure demanded compact aggregated settlements. The aggregation of population disturbed the traditional social structure and created new forms of social interaction and a new social organization. Occupational change and the movement from pre-urban to the aggregated settlements necessarily produced changes in the ways of life and also in the family. Ideas of innovation and progress undermined traditional sanctions and created a new perspective in the minds of men. Hauser says, "The development of large cities and increasing urbanization had important social consequences. Changes in technology and economic organization produced great changes in the cultural aspects of Western social institutions including the family, in value systems, and in personal form of thought and conduct."[7] These changes in the different spheres of urban living produced significant changes in family size. According to Thompson, "The very agglomeration of people which was made possible by the application of steam to manufacturing and transport seems to have been instrumental in the develop-

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6 Wirth, Louis., "Urbanism as a Way of Life," *The American Journal of Sociology*, Vol. 44, No. 1, (July, 1938), pp. 10-18.

7 Hauser, Philip M., Editor, *Urbanization in Asia and the Far East*, (Calcutta; UNESCO, 1957), pp. 5-6.

ment of modes of living which provide very powerful motives for the control of the size of the family,"[8] He adds that "this revolution in reproductive habits" and "The techniques of contraception as well as the motives leading to their use also be regarded as consequences flowing from the industrial revolution."[9]

The impact of urbanization on fertility operates through changing values, attitudes, goals and knowledge, but these in turn are effected by change in occupation, literacy, migration and level of living; in other words, through the changes effected in the objective aspects of the life situation, urbanization brings about changes in goals and motivations whlch lead to reduced fertility. Only the objective aspects of the life situation as relatted to changing urbanization are considered in this study.

Occupational Change

In rural areas agriculture is the main occupation and consequently there is occupational homogeneity. In towns and cities non-agricultural occupations predominate and also there is diversity of occupation and division of labor. These occupations require different kinds of training, professional competence and technical skill. In agriculture the place of work is near the home and the family functions as an economic unit. The whole family is engaged in the different operations and all are involved in some form or other. In the urban setting the place of work, be it a factory or an office, is away from home. Consequently the family ceases to be a center of economic function and the bread-winner spends a major portion of his time away in his place of work or with his co-workers. Thus a change in occupation basically alters the interaction patterns, roles, class structure and social organization itself. The separation of home from the place of work creates new patterns of social relation-

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8 Thompson, S. Warren, *Population Problems*, (New York: McGraw-Hill Book Company, Inc., 1953), p. 82.

9 *Ibid.*, p. 83.

ships, secondary in nature based on occupational status and interests. Non-agricultural workers tend to form themselves into hierarchy of professions and a different class structure is generated based on income and occupation. In urban areas the criterion for recruitment in non-agricultural occupations is skill, education and competence. So, mobility within non-agricultural occupations is possible.

It is evident that between rural and urban, there is a wide occupational difference. As urbanization increases, there is a corresponding increase in non-agricultural occupations. This occupational shift produces social and cultural change and creates repercussions on the family and its value orientations. These resultant changes in turn produce demographic change. It has been found that the occupation pursued is closely related to fertility. People engaged in agriculture usually have large families, whereas those in non-agricultural occupations have comparatively small families. According to Thompson, "The proportion of women who had one or two children or none was significantly higher in the business and professional classes than in the farmer . . ."[10] Thus occupational change from agricultural to non-agricultural as a result of urbanization appears to be accompanied by a decline in fertility.

Literacy Change

Urbanization has generated an intellectual renaissance and the pursuit of rational and scientific knowledge coupled with critical enquiry. This attittude is indispensable for any social change. It has also developed a willingness and a readiness to subject traditional beliefs, values and attitudes to a critical examination and evaluation. The result is the adoption of a more rational mode of conduct. Literacy emancipates the individual from ignorance and above all, from traditionalism. Two important conditions favoring voluntary control of family size

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10 *Ibid.*, pp. 177-178.

cited by Thompson are, 1) the growth of intellectual freedom, and 2) ambition.[11] These are products of a liberal system of education.

(It is assumed that the educated at different levels come within the group of the literate. Literacy and the literate are interchangeably used to include education and the educated respectively.)

Ordinarily education is a basic qualification for entry into any non-agricultural occupation; the more educated a person is, the higher occupational status he is likely to attain. Thus, education paves the way for upward mobility. An educated man takes up a job which may take him away from his home and when he changes from one job to another, he usually moves to yet a different area. Education seems to lead to upward and geographical mobility and these changes in turn tend to restrict family size. Literacy advances the age of marriage and generally educated people marry later than the uneducated. Education enhances the status of women and gives them self-respect and independence. Education frees the individual from the influence of the kinship group and the joint family and opens up better communication between husband and wife. These changes in women and the familly produce a new orientation regarding family size.

Higher aspirations are characteristic of the educated in an urban setting. They have better facilities for modern amenities and access to consumer goods. To meet these demands in a rational way, they find it necessary to limit their family size. Educated women seek outside employment, and too many children and home responsibilities create obstacles to their career. In the United States, Thompson found "that people with good education have had smaller families than those with little education, that women who work outside the home have had fewer children than those who did not.[12]

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11 *Ibid.*, pp. 215-219.

12 *Ibid.* pp. 176-177.

Analysis of group fertility shows that education and educational differences seem to determine the size of the family, at least in part. Urban areas are centers of educational institutions, of diffusion of new ideas and of scientific knowledge. It has been found that literacy rates are higher in urban areas than in rural and modern urbanization seems to increase literacy. With an increase in literacy, a corresponding increase in higher education could also be expected. Literacy and higher education are instrumental to a radical change in values and thinking—as freedom of thought, higher aspirations, a desire to improve social status, freedom to exercise one's choice, a realization of the cost of rearing and educating children—these changes seem to create favorable conditions for the limitation of family size. So, urbanization through literacy change, exerts its impact on fertility.

Change in Level of Living

Industrially advanced countries, marked by development and economic growth, are seen to have a high level of living. These countries have developed their resources, have high productivity, and therefore, have an abundant supply of goods and services. Industrially advanced countries are also highly urbanized. As industrialization and urbanization are concomitant movements, urbanization is an indicator of economic development. So, it is argued that urbanization raises the level of living.

Urban centers afford a favorable climate for economic progress. Towns and cities are centers of innovations and technical progress. They are also centers of trade and commerce, having contact and communication throughout the world. Urbanization is a response to the demand for a larger labor force as a result of industrial and economic development.

Economic growth increases the per capita income and the consumption pattern. The increase in per capita income enables people to save more. More saving leads to accumulation of capital without which economic development is not possible

Since urban areas show economic growth and development, the level of living tends to be higher compared to rural areas. Countries with a high percentage of urban population invariably have a high level of living, and a high level of living appears to introduce interests which compete with the interest in children. "Families are smallest in those countries where levels of living are highest. Within the period of declining fertility, the average real income has been rising, and the rich have generally had fewer children than the poor. It has therefore been suggested that increasing wealth decreases fertility."[13] Urbanization brings about a change in the level of living which in turn has its impact on fertility.

Residential Change : Migration

Urbanization almost always involves rural-urban migration which is a major contributing factor to the agglomeration in towns and cities. An accelerated pace of urbanization is made possible by a corresponding increase in the volume of rural-urban migration. Residential changes or migration is a prelude and a precondition to the three changes already discussed. Migration paves the way to changes in occupation, literacy and level of living.

Rural-urban migration is not merely one of change of residence but implies significant changes in the migrant's way of life. It involves giving up of the traditional rural pattern of life and entering into and accepting the urban way of life with all its ramifications. Once the initiation has taken place, the process of assimilation into the complete urban way of life may involve different stages depending upon the receptivity of the migrants. The transformation that takes place in the ways of living and thinking, and in beliefs and values produces favorable conditions for reduction in family size. Urbanization through migration operates to reduce fertility.

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13 United Nations., *The Determinants and Consequences of Population Trends*, Population Studies No. 17., (New York : United Nations, 1953), p. 80.

The Problem Defined

In this study urbanization is the independent variable for the explanation of change in fertility, the dependent variable. Urbanization produces changes in the intervening variables—occupation, literacy, level of living and residence, and it is maintained that the cumulative effects of these changes create favorable conditions for fertility change. The intervening variables are interrelated and any change in one of them produces some concomitant changes in others. Operating through these intervening variables, urbanization exercises its impact on fertility.

Statement of the Problem

The purpose of the study is to examine and determine the impact of urbanization in India on fertility through the intervening factors of occupation, literacy, level of living and migration for the period 1931-1951.

Hypotheses to be tested

On the basis of the reasoning developed above it is anticipated that the following propositions will hold in a newly industrializing nation such as India.

1. Urbanization produces changes in occupational structure in the form of an increase in the proportion of non-agricultural occcupations.
2. Urbanization is directly associated with increasing literacy.
3. Urbanization is directly associated with improvements in the level of living.
4. Urbanization is directly associated with increasing rural-urban migration.
5. The changes produced by urbanization in occupation, literacy, level of living and migration have an inverse relationship to fertility.

Definitions

Urbanization

The "Dictionary of Social Science" gives two definitions of urbanization :

a) "A gradual increase in the proportion of people living in urban areas."

b) "The process whereby a society changes from a rural to an urban way of life."[14]

The rural-urban migrant cannot live in isolation and will be exposed to urban life and values. The two elements of urbanization as expressed in the above two definitions co-exist and are inseparable. Conceptually it is thought that a combination of these two definitions would give a clearer perspective of the sociological implications and demographic consequences of urbanization. But operationally, in this study, urbanization refers only to "A gradual increase in the proportion of people living in urban areas."

Fertility

Fertility is defined as "the frequency of births in a population."[15]

Occupation

According to the Indian Census usage, occupation is "principal means of livelihood,"[16]

Literacy

"A person will be regarded as literate if he can both read and write in any one language."[17]

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14 Zadrozony, John T., *Dictionary of Social Science*, (Washington D.C. Public Affairs Press, 1959), p. 356.

15 United Nations., *Fertility Data in Population Censuses*, Population Studies No, 6., (New York: United Nations, 1949), p. 3.

16 Census of India, 1951, Vol. 2 (Utter Pradesh), Part I-A, p. 95.

17 *Ibid.*, p. 456.

Level of Living

Level of living is the average plane of living indicated by the per capita income and the consumer expenditure pattern.

Migration

Migration refers to rural-urban migration—the movement of people from rural to urban areas.

Urban and Rural

It is not possible to evolve a standard classification of urban and rural applicable to all countries, and demographers have admitted this difficulty. For the purpose of this study it is proposed to adopt the definitions used by the Census Commission of India. In the Indian Census, Urban is defined as "An agglomeration having a continuous group of houses permanently inhabited by usually not less than 5,000 persons is to be treated as 'town' or in other words an urban area."[18] All other areas are classified as rural.

In summary, it is contended that the process of urbanization is dynamic and as such it produces significant changes in occupational structure, literacy rate, level of living and residence. These consequent changes are instrumental to important demographic change. In order to determine the impact of urbanization on fertility in India, it is essential that the nature and extent of urbanization in India be examined.

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18 Ibid., p. 110.

CHAPTER II

THE TREND AND EXTENT OF URBANIZATION IN INDIA

Pre-industrial cities of India

Urbanization is not a new phenomenon in India. In her own way India was a highly urbanized country and accounts from many European travelers reveal the existence of many, big, populous cities in the fifteenth and sixteenth centuries.[1] The origin and growth of cities in India had been largely dependent on historical circumstances and fortuitous events. In the past cities arose as seats of government, places of religious pilgrimage and importance, trade centers and strategic military posts.

Many of the pre-industrial cities of India were capital cities built by rulers and kings and functioned primarily as administrative centers. A military garrison, various administrative bureaucrats and the elite settled within the fortified city. Some artisans and craftsmen added to the population to cater to the needs of the people who lived in those cities. Trade, commerce and handicrafts followed the creation of such cities. Needless to say the pre-industrial cities mainly symbolized seats of royalty and power. The defeat of a king in war, the decline of a dynasty, or the loss of sovereignty of a ruler frequently led to a change of capital and with it the former capital city dwindled in importance. Thus the glorious days of many of the famous pre-industrial cities of India came to an end. As their functions ceased, their importance dimīnished and they sank into oblivion, only to remain as centers of historical or archaeological importance.

Crane[2] divided the pre-industrial cities of India into three

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1 Crane, Robert K., "Urbanism in India" *The American Journal of Sociology*, Vol. 60, No. 5. (March, 1955), pp. 468-469.

2 Ibid., pp. 469-470.

types: (1) "administrative centers" (2) "handicraft centers" (3) "major trade emporiums". The competition of machine manufactured goods imported into India by the British traders and their control of the main trade routes dealt a severe blow to the Indian handicraft industry and cities of the second and third type dwindled from their former greatness and gradually lost their importance. A change in political authority from Indian to British rule resulted in a change in administrative capitals and in this way the first type of pre-industrial cities also lost their functional character.

The pre-industrial cities in India were arbitrary creations devoid of any socio-economic foundations. They were only loosely connected with the regions that provided them with sustenance. Communication with other areas as well as trade and commerce with the surrounding regions were limited. Besides, there was no marked territorial division of labor. They had been limited by the needs and capacities of a small rural hinterland with which there was little or no integration. The manufacturing industry was largely handicrafts which were as much rural as urban. No wonder the pre-industrial cities could not with stand the upsurge of modern industrial urbanization.

Modern Urbanization

The middle of the nineteenth century saw the emergence of cities of a different type and function, the outcome of industrialization. Sjoberg maintains that, "Industrialization is a key variable accounting for the distinctions between pre-industrial and industrial cities."[3] The industrial cities of India originated after the advent of British supremacy in India. The three big cities, Calcutta, Bombay, and Madras, functioned in the beginning as European trading settlements and gradually developd into commercial, industrial and administrative centers. By the

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3 Sjoberg, Gideon., "The Pre-industrial City" *The American Journal of Sociology*, Vol. 63, No. 5, (March, 1955), p. 444.

beginning of the twentieth century their commercial and industrial functions surpassed the political.

In some respects modern urbanization seems to have transformed some old urban centers by partially superimposing on them Western ecological patterns, new forms of economic activity and social organization. Consequently, as Hoselitz points out, "The cities of contemporary under-developed countries are hybrid institutions, formed in part as a response to the indigenously developing division of social labour and in part as a response to the impact made upon less advanced countries by their integration into the world economy."[4] Modern urbanization could not obliterate completely the pre-industrial cities nor their characteristics and build anew cities with economic and social institutions. In several cities in India the characteristics of pre-industrial cities co-exist with those of modern urban centers, as for example, old Delhi and new Delhi. In this connection, Hauser also refers to the "pluralistic composition and characteristic dual economies" of such cities.

Pace and Pattern

The pace of urbanization from 1872 to 1931 had been slow though steady but during the last thirty years, from 1931 to 1961, India seems to have been in the grip of an accelerated pace of urbanization. There was a high spurt in the pace in the decade between 1941-1951. Visible indications of this recent trend can be seen all over the country. Some cities have grown to enormous sizes and proportions. Many rural areas have qualified to be classified as urban. Movement of population from rural areas to towns and cities has become a perennial process. The proportion of urban population and the percent-

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4 Hoselitz, Bert F., "The Role of Cities in the Economic Growth of Underdeveloped Countries," *Journal of Political Economy* Vol. 61, No. 3, (June, 1953), p. 205.

5 Hauser, Phillip M., Editor, *Urbanization in Asia and the Far East*, Calcutta : UNESCO, 1957), p. 87.

age of increase during the last four decades are as follows :

Table 1. Percentage of Urban Population 1921 to 1961

	Percentage of Urban Population[a]	Percentage of Increase During the Preceding Decade
1921	11.4	
1931	12.1	6.1
1941	13;9	14.9
1951[b]	17.4	24.5
1961[c]	17.8	2.9
1961	18.3	5.1

[a] Ministry of Information and Broadcasting., *India, A Reference Annual, 1961*, (Faridabad : Government of India, Press, 1961), p. 24.

[b] *Census of India*, 1961, Provisional Figures, p. 10.

[c] Adjusted figure due to difference in definition of urban between 1951 and 1961, George, M. V., "A Decade of Unprecedented population Growth in India " *Asian Survey* Vol. 1, No. 12, (February, 1962), p. 34.

The accelerated urbanization seems to have been especially characteristic of bigger urban localities. The agglomerations in big cities have been increasing their population more than the smaller ones. Urban localities with a population of 20,000 and more seem to have gained more rapidly than those under. Table 2 shows the increase in the percentage of urban population in localities of 20,000 and more.

Table 2. India—Relative Increase in the Percentage of the Urban Population (20,000 and more)

1910–1920	....	15.9%
1920–1930	....	23.5%
1930-1940	....	30.2%
1940–1950	....	46.3%

[a] Hauser, Phillip M., Editor, *Urbanization in Asia and the Far East*, (Calcutta : UNESCO, 1957), p. 105.

An examination of the different sizes of town and cities and their variation indicates that cities with a population of 100,000 and over have shown the largest increase. It is observed that the larger the city, the greater the population increase. The thesis Davis has set forth, that "Urbanization is itself a factor in still greater urbanization"[6] is true here. Between 1931–1951 the percentage increase of the number of cities of 100,000 and over is 92.1 whereas the percentage increase for towns with population between 5,000 and 10,000 is only 19.8 (see Table 3), There is a concomitant relationship between the size of an urban locality and the percentage increase ; the bigger the urban locality, the greater the increase.

Table 3. Increase in Number of Towns and Cities by Size 1931-1951

	1931[a]	1951[b]	Percentage Increase
100,000 and over	38	73	92.1
50,000 to 100,000	65	110	69.2
20,000 to 50,000	288	375	30.2
10,000 to 20,000	543	665	22.4
5,000 to 10,000	987	1183	19.8

[a]Mamoria, C. B., *India's Population Problem*, (Allahabad : Kitāb Mahal Private Ltd,, 1961), p. 181.

[b]Ministry of Information and Broadcasting, *India, A Reference Annual, 1961*, (Faridabad : Government of India Press, 1961), p. 24,

In 1951 there were seventy-three cities with a population of 100,000 and over and the total population of those exceeded one-third of the total urban population of India. More than one-sixth of the entire population of those cities was in one metropolitan area, Greater Calcutta. The ten largest cities of India added over five million to their population during the decade immediately before the 1951 Census. The addition during the preceding decade (1931-1941) had been only 3.3

6 Davis, Kingsley., *op. cit.*, p. 130.

million. In 1931 and 1941 India had only two 'million' cities, but in 1951 the number increased to five. The ten largest cities, the variation in their population and the percentage increase during the last three decades are given in Table 4 and Table 5.

Table 4. The Population of the Ten Largest Cities in India[a] 1931-1961 (in millions)

	1931	1941	1951	1961
Greater Calcutta	2.078	3.534	4.578	5.550
Greater Bombay	1.303	1.695	2.839	4.146
Madras	.647	.777	1.416	1.725
Hyderabad	.467	.739	1.086	1.252
Delhi	.439	.660	1.384	2.644
Ahmedabad	.314	.595	.794	1.150
Bangalore	.308	.407	.779	.908
Lucknow	.275	.387	.497	.662
Poona	.266	.345	.589	.721
Kanpur	.244	.487	.705	.948
	6.341	9.626	11.667	19.706

[a] *Census of India*, 1951, Vol. 1, Part II-A, pp. 64-72

Table 5. The Percentage Increase of the Population of the Ten Largest Cities in India 1931–1961

	1931-41	1941-51	1951-61
Greater Calcutta	70.2	29.5	21.2
Greater Bombay	30.1	67.5	46.0
Madras	20.1	82.1	21.8
Hyderabad	58.3	46.9	15.3
Delhi	50.2	109.8	91.0
Ahmedabad	89.7	33.4	44.9
Bangalore	31.9	91.5	16.5
Lucknow	41,0	28.3	33.3
Poona	29.8	70.6	22.5
Kanpur	99.9	44.7	34.4
Total	51.8	52.4	34.4

Except Delhi which is the capital of India and functions as an administrative center, all the others are industrial centers. During 1931-1951 the ten biggest cities doubled their populations and the decade 1941-1951 saw the largest total increase. Some of those big cities have a very high density and are terribly over-crowded and congested. Madras has well developed suburbs which have relieved the congestion in the central city.

Calcutta City presents a case of acute congestion, and 18.2 percent of its population consists of displaced persons. It has a density of 88,953 per square mile and an average of 3.6 persons per living room. Bombay, the second largest city in India had the highest density in 1951.

Table 6. Density in Selected Cities of India (per square mile)

	1931	1951
Calcutta	24,400	88,953[b]
Bombay	48,400	92,275[c]
Madras	22,300	28,940[d]
Moradabad	29,000	42,783[e]
Benares	25,900	40,272[e]

[a]Davis, Kingsley, *The Population of India and Pakistan*, (New Jersey : Princeton University Press, 1951), p. 144.

[b]*Census of India*. 1951, Vol. 6, Part III, Calcutta City, p. vii.

[c]*Census of India*, 1951, Vol. 4, Part I, (Bombay. Saurashtra and Kutch), p. 5.

[d]*Census of India*, 1951, Vol. 3, Part I, (Madras and Coorg), p. 70.

[e]*Census of India*, 1951, Vol. 2, Part I-A, (Uttar Pradesh), p. 161.

In the past the degree of urbanization in India has not been high when compared to many industrialized countries in the world and even now India is predominantly rural. The pace of urbanization has not been uniform all over the country. It has varied from region to region and from state to state. Though 17.4 percent of India's population was living in urban localities in 1951, some states were far less urbanized. For example,

Assam had 4.6 percent, Bihar 6.7 percent and Orissa only 4.1 percent urban population in 1951. Though the pace has not been uniform, the process of urbanization has been extensive over the entire country. Modern urbanization in India has made a good start and has enormous potential; all indications are that India is set for a period of unprecedented and uninterrupted urbanization.

The pattern of the development of cities in India has not been in the best national interest. The big cities have been growing at a high rate toward boundless aggregation. Neither the Government agencies nor the city administrations were prepared to meet this sudden, untoward occurrence. Consequently, most of the Indian cities are beset with the physical and social problems of rapid urbanization.

It may be that the large cities have the capacity to absorb more population and also to provide them with employment opportunities of some kind or other. The expansion of the existing industries and the starting of new enterprises have been facilitated at these convenient urban locations. A labor force with a variety of skills and occupational specialities, and above all committed to industry, can be easily recruited in cities. Trade and commerce develop and thrive with the growth of industry and population. "All these factors", says Hoselitz, "appear to be commonplace, but together they explain why in underdeveloped countries industries tend to concentrate in a limited number of cities, why these cities often grow to very great size, and why many countries entering the path of industrialization have vast agricultural regions with very few industrial islands in them."[7]

Calcutta, Bombay and Madras, the three biggest cities of India, have been developed on water routes and they, with some others, are provincial capitals. The further growth and expan-

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7 Hoselitz, Bert F., "The Role of Cities in the Economic Growth of Underdeveloped Countries," *The Journal of Political Economy*, Vol. 61, No. 3 (June, 1953), p. 196.

sion of the existing big cities which are somewhat "primate cities" and tend to be "parasitic" would hinder the national economic growth as the vast rural hinterland remains unpenetrated and underdeveloped. Lampard upholds that, "The presence of an overly large city in a pre-industrial society may act as a curb rather than a stimulus to wider economic growth."[8]

Territorially the big cities show an uneven distribution and only a few are well placed. In 1951 India had seventy-three cities with a population of one hundred thousand and more. From the point of view of area and people served, there was one city for about 18,100 square miles and for more than five million people. This was not an adequate provision for the discharge of cultural and socio-economic integrative functions of big cities.

An era of decentralization of industries and thereby a repatterning of urbanization began after 1950 when India became an independent country. This was prompted for four reasons : to curtail any further swelling of population in the big cities, to develop the unexploited natural resources in the hinterland, to locate industries close to places where raw materials are available and finally to undertake an even national economic development. The slowing down of the concentration of population in the ten big cities of India between 1951-1961 may probably be due to these measures. The pressure on the big cities may have been diverted to the new cities which have been springing up. The percentage of increase of the ten largest cities in India between 1951-1961 was only 34.4 whereas in the preceding decade it was 52.4. Since the start of the planned industrial development of 1951, a series of new industries has been spreading to new areas in the country. Some of these new industrial towns have shown very rapid growth and have recorded more than one hundred

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8 Lampard, Eric E., "The History of Cities in the Economically Advanced Areas," *Economic Development and Cultural Change*, Vol. 3, No. 2 (January, 1955), p. 131.

percent increase in the last decade as shown in Table 7.

Table 7. Growth of New Industrial Cities

	Percentage Increase 1951-1961[a]
Durgapur	558.6
Gauhati	130.9
Malegaon	120.7
Bhopal	120.3
Thana	101.6

[a] *Census of India*, 1961, Provisional Figures, pp. 3-4.

Widespread dispersal and decentralization of new industries has been and continues to be the policy of the Government of India and hence the new pattern of urbanization and development of cities is likely to continue for many decades.

Migration

The accelerated pace of urbanization in India is conditioned by a large volume of rural-urban migration. It may even be stated that urbanization is a particular type of internal migration. Analysis of the trend and the forces which hasten the pace of urbanization is essentially an examination of rural-urban migration and the economic and social factors that are at work to stimulate this movement. The study of rural-urban migration could furnish an insight into the process of urbanization itself. Commenting on "Urbanization and Migration in India," Bogue and Zachariah declare, "Rural-to-urban migration is by far the major component of urbanization and is the chief mechanism by which all the world's great urbanization trends have been accomplished. This being the case, there is great potential profit in focusing on rural-to-urban migration as a way of deepening one's understanding of urbanization process."[9]

9 Bogue Donald J., and Zachariah, K.C., "Urbanization and Migration in India," *India's Urban Future*, Editor, Turner, Roy, (Berkeley and Los Angeles : University of California Press, 1962) Chapter II, p. 28.

Of the two components of population growth, it is believed that migration has been primarily responsible for urban agglomeration in India between 1931-1951.

Table 8. Population Growth in Villages and Towns[a]

Census Year	Population in Millions		Rate of Growth During Preceding Decade	
	Villages	Towns	Villages	Towns
1921	219.9	28.2		
1931	242.0	33.4	+10.1	+18.4
1941	271.0	43.8	+12.0	+31.1
1951	295.0	61.9	+ 8.9	+41.3

[a]*Census of India* 1951, Vol. 1, Parts I-A and I-B, p. 152.

The above table shows clearly that the rate of growth in villages is much lower than in towns, and higher growth in towns could be accounted for by migration from villages to towns. Between 1941 and 1951 an estimated total of about nine million persons, which is equivalent to twenty percent of the Indian urban population of 1941, migrated to towns and cities from rural areas in India. The two states Madras and Bombay had about 1.7 million and 1.6 million rural-to-urban migrants respectively.

Table 9. Net Migration to Metropolitan Cities in India[a] 1941-1951 (in millions)

Bombay	.954
Madras	.540
Delhi	.406
Calcutta	.351

[a]Computed from Bogue, Donald J., and Zachariah, K.C., "Urbanization and Migration in India," *India's Urban Future*, Editor, Turner, Roy, (Berkeley and Los Angeles: University of California Press, 1962), Chapter II, p. 42.

The causes that impelled the abnormal rural-urban migration in the decade between 1941-1951 were not merely a response to the demand for a larger urban labor force and employment

opportunities in urban areas. This was probably one of the many causes. The Second World War created shortage of foodstuffs and consumer goods all over the country and the demand for them was great. The rural areas were hit severely as there was no control over food and consumer goods there.

During the decade 1941-51 when urbanization hit a peak record, many special factors were in operation which encouraged the rural people to migrate to towns and cities. The 1951 Census report enumerates the following as the six main causes for the attraction of towns to the rural people :[10]

1. The introduction of controls and rationing in towns and cities over food and goods which were in short supply.
2. Educational facilities.
3. Medical facilities.
4. The demand for industrial labor.
5. Opportunities for non-agricultural occupations specially for the professional services and for miscellaneous jobs such as domestic servants and casual labor.
6. "The increase in the demand for urban amenities besides educational institutions and medical facilities."

The National Sample Survey conducted by the Government of India between 1955-58 on internal migration gives the percentage distribution of immigrants by certain categories of reasons for migration as in Table 10.

Table 10. Percentage Distribution of Immigrants by Reason for Migration and sex: All-India Urban[a]

Reason for migration	Males	Females	Persons
Voluntary reasons			
1. For employment	40.15	2.73	21.37
2. For studies	6.19	1.11	3.64
3. Other reasons	6.89	2.92	4.89
4. All voluntary reasons	53.23	6.76	29.90

10 *Census of India*, 1951, Vol. 3, (Madras and Coorg), Part I-Report, p.63.

Reason for migration	Males	Females	Persons
Sequential reasons			
5. Under transfer on service or business contract	5.75	.40	3.07
6. On marriage	.56	46.23	23.47
7. With earning or dependent member of household	18.53	28.38	23.47
8. Political change (refugee)	13.87	10.70	12.28
9. Other reasons	3.70	3.72	3.72
10. All sequential reasons	42.42	89.43	66.01
11. Not recorded	4.35	3.81	4.09
12. All reasons	100.00	100.00	100.00
13. Number of sample persons	10262	10034	20296

[a] *The National Sample Survey*. No. 53. Tables with Notes on Internal Migration. (Delhi: The Cabinet Secretariat, Government of India, 1962), p. 10.

The percentage of people who migrated for employment to big cities was 36.20, to towns with a population of three hundred thousand and above was 26.82 and to towns with a population below three hundred thousand was 16.63. It is believed that in general the reasons for migration set forth in this survey would hold good for the decade 1941-51 except for those caused by war. According to data from the Research Committee of the Planning Commission, referred to by Sovani, "The percentages of in-migrants who had migrated because of unemployment at home, meagre income, insufficient land, etc., into Bombay, Hyderabad, Jamshedpur, Kanpur, Hubli and Poona were 58, 50, 46, 40, 50, and 70 respectively. The remaining had moved for education, better prospects of employment in towns, attraction of city life, etc., and because of service transfers."[11]

11 Sovani, N.V., "The Urban Social Situation in India," *Artha Vijnana* Vol. 3, No. 3, (September, 1961), p. 202.

These data reveal that both "pull" and "push" factors are in operation in rural-urban migration. The proportions of migrants seeking employment and other amenities of city life are fairly high. The rural-urban migrants have realized that the cities have something to offer to them which the villages could not. In this movement of people, employment opportunities have a strong "pull", but significantly enough, the role of cities as centers of cultural and social change has also come into play. An examination of the economic conditions prevalent in the rural areas with special reference to agricultural economy and the employment situation will throw more light on the compelling causes that "push" the migrants to leave their ancestral homes and migrate to an entirely new environment.

Urbanization and Economic Development

Demographic Pressure on Land

Agricultural production and the cultivated land per capita have not kept pace with the growth of population. Unemployment and underemployment is common in the villages. The underemployment in the rural areas has been increasing and this was reflected in the number of workers per unit area of cultivated land. The area of cultivated land divided by the population at each census is taken as the area of cultivated land per capita. The growth of population in relation to per capita land is given in Table II on the following page.

In the thirty year period from 1921 to 1951, the area cultivated per capita fell steadily from census to census. The share of food and other products of cultivation available to each individual diminished. This was also an indication of increasing demographic pressure on land. In spite of the decline in the area of cultivated land per capita, there was no corresponding reduction in the relative weight of dependence on agriculture for gainful employment: in 1931, 65.7 percent of the population was engaged in agricultural occupation and in 1951, the percentage increased to 68.1.

Table 11. The Growth of Population in Relation to Per Capita Land[a] 1891 to 1951

Census Year	Number (in millions)	Increase (+) Decrease (—) During preceding decade (in millions)	Area of Cultivated land per capita (in cents)
1891	235.9		109
1901	235.5	— .4	103
1911	249.0	+13.5	109
1921	248.1	— .9	111
1931	275.5	+27.4	104
1941	312.8	+37.3	94
1951	356.9	+44.1	84

[a] *Census of India*, 1951, Vol. 1, Parts I-A and I-B, pp. 122 and 141.

The extent to which unemployment had increased has been reflected in the progressive decline of workers employed and in the increase of non-earning dependents as shown in Table 12 on the following page. The proportion of workers in both the agricultural and non-agricultural sectors was also gradually declining as seen in Table 13 on the following page.

Table 12. Number and Percentage : Workers and Non-Working Dependents[a]

Year	Workers (in millions)	%	Non-working Dependents (in millions)	%
1901	103.39	50.1	103.26	49.9
1911	125.54	49.6	127.79	50.4
1921	122.66	48.6	129.42	51.4
1931	129.69	47.0	146.54	53.0
1951	142.33	39.9	214.29	60.1

[a] Mamoria, C.B., *India's Population Problem*, (Allahabad: Kitab Mahal Private Ltd., 1961), p. 315.

Table 13. Variation in the Proportion of Workers in Agricultural and Non-Agricultural Sectors [a]

Year	Workers in Agricultural Sector (in millions)	%	Workers in Non-agricultural Sector (in millions)	%
1901	64.45	31.2	39.24	18.9
1911	87.19	34.5	38.34	15.1
1921	83.88	33.2	38.78	15.4
1931	80.70	29.2	48.96	17.8
1951	102.18	28.6	40.21	11.3

[a] Mamoria, C.B., *India's Population Problem*, (Allahabad: Kitab Mahal Private Ltd., 1961), p. 315.

These two tables furnish important evidence to show the deteriorating unemployment situation in the country. In other words, there was mounting pressure of population on land and its resources.

The decline in the area of cultivated land per capita is to be distinguished from the decline in the productivity of cultivation per capita. When compared to other countries in the world the yield per acre in India has been far below the optimum yield. It is claimed that "By and large, the yield per acre has tended to remain stationary during the last few decades. While in the case of cash crops, there is a clear evidence of general increase in yields, in the case of food crops, the yields do not show any definite trend either way."[12] Fragmentation of holdings, poor equipment and outmoded methods of cultivation, meagre use of fertilizers and the poverty and indebtedness of the peasantry have impeded increased production

The total food production. in relation to population

12 Mamoria, C.B., *India's Population Problem*, (Allahabad: Kitab Mahal Private Ltd., 1961), p. 292,

growth has also declined. This is evidenced by the fact that India has been importing large quantities of food and shortages of foodstuffs have led the Government to control distribution and resort to rationing. Table 14 shows the average net imports of foodgrains into India.

Table 14. Average Net Imports of Foodgrains Into India[a] (Undivided India)

Year	Net Imports (millions of tons)
1928-32	1.0
1932-36	1.6
1936-40	1.3
1940-44	.3
1947-51	2.8

[a]Computed from: *Census of India*,1951, Vol. 1, Parts I-A and I-B, p. 312.

Between 1900 and 1914 India exported 3.5 million tons of food whereas from 1919 onwards, she has been importing and the imports have been on the increase till 1951 except for some decline between 1940-44 due to the loss of supplies from Burma. There seems to be a wide gap between production and consumption and it has to be bridged by imports. It is estimated that India has an annual shortage of about five million tons of food.

Children and younger persons comprised 38.3 percent of the population in 1951 and they were mostly non-producers. In India food products form by far a larger share of consumer's expenditure and food constitutes about seventy percent of the average family budget. Even according to normal dietary standards the consumption per capita is meagre and as the level of living goes up, consumption of food is likely to increase. Not only is there severe population pressure on land and its resources, but agricultural production was not able to keep pace with the growth of population and thus economic development was hampered.

Industrialization

Agriculture has not attained the capacity of productivity to provide self-sufficiency in food, to create a surplus for capital formation, nor to increase a demand for secondary products. This is a primary and essential condition for rapid industrialization. In India an agricultural revolution did not precede industrialization as occurred in the West. India had to commence a period of industrial expansion with the severe handicap of an undeveloped agricultural economy and a growing population.

Before the Second World War, industrial growth was very slow. The war created a major demand and ready market for consumer goods and the existing industries expanded their production and were turning out goods to their full capacity. Some new industries were also started. Following the war the demand for consumer goods remained high but no planned industrial expansion was put into operation till 1951. Table 15 and Table 16 show the growth and production of five industries between 1937 and 1951.

Table 15. Growth of Industries[a] 1937-1951
Production (thousands of tons)

Year	Cement	Paper	Steel Ingots	Sugar
1937	1,116	53.8	899	1,111
1941	1,790	85.5	1,082	1,047
1951	3,380	115.7	1,057	1,101

[a]Rosen, George., *Industrial Change in India*, (Illinois: The Free Press, 1958), pp. 64 68, 74, 84.

Table 16. Growth of Cotton Textile Industry[a] 1931-1950

Year	Yarn (million pounds)	Piece Goods (million yards)
1931	966	672
1941	1,577	1,093
1947	1,296	3,762
1950	1,174	3,667

[a]Ministry of Information and Broadcasting, *India, A Reference Annual*, 1961, (Faridabad: Government of India Press, 1961), p, 24.

Industries and industrial production had not grown during 1931-51 at such a rate as to provide gainful employment as well as to outstrip population growth. After an empirical economic and statistical research into five important Indian industries, Rosen comes to the conclusion, "In spite of the industrialization which had taken place in India prior to 1951, very little change in the relative position of industry had occurred. Significantly, in 1951 the proportion of the labor force employed in factory establishments was only 2.1 percent, and the proportion of the national income contributed by this section of the economy was only 6.5 percent. Although there was a definite absolute growth in manufacturing industry, these proportions had not increased between 1931 and 1951; they may, in fact have slightly declined."[13]

Industrial and economic development necessitates a change in the structure of production and also a change in the structure of employment of labor. It involves a reduction of the relative importance of agriculture as a gainful occupation and an increase in non-agricultural pursuits. The major share of national income in a highly developed country is usually from industrial production. In India agriculture has contributed 51.3 percent of the national income with 68.1 percent labor force and factory industry contributed 6.5 percent with 2.1 percent labor. Tertiary employment of a marginal kind including domestic service, casual labor, petty trade and low productive activities has been predominant over secondary industrial employment.

During the period under study some of the essential conditions for growth and expansion of industries were absent in India. Industrialization itself was at an early stage. Production was confined mostly to turning out consumer goods to meet immediate demands and this policy has proved short-sighted in the long run. The major industries were light and little or no

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13 Rosen, George., *Industrial Change in India*, (Illinois : The Free Press, 1958) p. 3,

foundation has been laid for basic and heavy industries without which secondary and tertiary industries could not possibly expand. India has been importing large quantities of steel, industrial and mining machinery, and railway machinery and equipment. This has produced a heavy drain on the country's resources and a severe strain on capital formation. Skilled technicians and specialists with adequate "know how" were not readily available.

Both the agricultural base and the industrial base being deficient, they could not supplement each other and make substantial contributions to the economic development of the country. The benefits of industrial expansion in meeting the growing needs of goods and services and providing gainful employment to the increasing labor force were not commensurate with the growth of population in the country.

Apparent Causes for Slow Economic Development

Over-urbanization

Two salient problems emerge after an analysis of Indian urbanization in relation to economic development :

1) Economic development has not been keeping pace with population growth.

2) Economic development has not been keeping pace with urbanization.

Comparing Indian urbanization with that of other countries such as U.S.A., England and Wales, and Japan, Davis argues that Indian urbanization has been slow because of "the relative slowness of economic development."[14] He admits, however, that the rate for the short term trend for decade 1941-1951 was higher than that experienced in Japan and U.S.A. Again, comparing India's relative position on selected indices of

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14 Davis, Kingsley, "Urbanization in India, Past and Future" *India's Urban Future*, Editor, Turner, Roy, (Berkeley and Los Angeles : University of California Press, 1962), pp. 4-8.

economic development such as non-agricultural employment, agricultural density, urbanization, literacy, and per capita income, Davis and Golden hold that India has been far behind on literacy, per capita income and the reduction of agricultural density.[15]

Further, they add that urbanization in India has exhibited some tendency to run ahead of other aspects of development and that after 1931 she was experiencing some features of "over-urbanization." Hauser believes that Asian countries including India are over-urbanized in relation to their degree of economic development and to the proportion of their labor force in non-agricultural occupations.[16] One of the conclusions of the Bangkok Seminar was, "At the present time, there is a larger urban population than is justified by the present levels of agricultural and non-agricultural productivity. Much of this urban population growth has not occurred in response to economic need for large urban population concentration "[17] It is believed that the rural-urban migration which occurred during the decade 1941-51 in India was more than the required volume and hence created chaotic conditions. Probably many of the migrants could not obtain suitable urban employment but were staying on hoping for better days.

The presence of a large backlog of unemployed or under-employed people in the urban areas tends to block rural-urban migration. This might be the cause for the slowing down of urbanization in the next decade. Over-urbanization without sufficient economic development creates heavy burden on the available resources. The allocation of limited resources to productive investment versus housing, health, education and welfare in congested urban areas is a serious problem. India

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15 Davis, K., and Golden, Hilda Hertz, "Urbanization and the Development of Pre-Industrial Areas," *Economic Development and Cultural Change* Vol. 3, No. 1 (October, 1954), pp. 15-16.

16 Hauser, Pillip M., *op. cit.*, pp. 9 and 35.

17 *Ibid.*, p. 33.

has been facing this dilemma ever since over-urbanization overtook her.

Differences at the time of urbanization

In comparing Indian urbanization in relation to economic development with some Western models, some of the basic differences in the conditions which existed at the time of urbanization both in India and in the West cannot be ignored. There were important differences in the economic, social and political conditions in both areas. Commenting on these, Hoselitz[18] says, "There are significant differences in the conditions which existed when Europe industrialized and those we find in Asia today." According to him the important differences are in the "economic ethic," "factors determining the capacity for capital formation and the forms of economic organization" and "greater rural density of population."

Modern urbanization began in India as the product of a colonial economy and national interests were perforce subordinated to colonial interests. The state of agricultural and industrial technology was backward and no revolution on either front had taken place. At the initial stages of her economic development, the population of India was at a high level and out of proportion to her resources. Social and economic organizations were dominated by traditionalism and social change had not made any appreciable beginning.

Cultural Values and Social Organization

Some sociologists contend that the structure of the economic growth of a society is intimately related to its cultural values and social organization. They maintain that the existing cultural values and social organization in the underdeveloped countries do not provide a suitable climate for an industrial economy.

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18 Hoselitz, Bert F., "Population Pressure, Industrialization and social Mobilily," *Population Studies*, Vol 11, N0. 2 (November, 1957),p. 123.

Their forms and mechanisms are not adequate to provide real savings and make it possible to channel them into productive investment. So, it is argued that the re-structuring of cultural, social and economic orders are indispensable to prepare a fruitful soil for economic growth. The cultural and social institutions of those countries are dominated by traditionalism and they are resistant to change; hence development is hampered and slow.

Hoselitz attempts a comparison between a Western industrialized social system with that of an underdeveloped country in relation to their economically relevant behavior of production and distribution of goods and services.[19] Using the pattern variables of Parsons, he argues that the underdeveloped economies are characterized by particularism, ascription and functional diffusion in their social systems with regard to their economic behavior. For an illustration of particularism he cites the Indian Caste System. This school of thought believes that certain prescribed values like the Protestant ethic is a necessary pre-condition for the type of economic order that has developed in the West.

The question whether Indian traditional cultural values can furnish a positive ethic for India's economic development or whether they tend to hinder economic progress was raised in a discussion on "India's Cultural Values and Economic Development."[20] The two Indian members of the panel, Srinivas and Karve, support the view that while Indian conception of life lays stress on spiritual and transcendent values, due weight and importance is also given to material values and achievement. Srinivas is inclined to believe that the real causes for India's economic stagnation have to be sought elsewhere, and in her

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19 Hoselitz, Bert, F., "Social Structure and Economic Growth" *Economia Internationale*, Vol. 6, No. 3 (August 1953), pp. 52-66.

20 Goheen, John, Srinivas, M.N., Karve, D.G. and Singer, Milton, "India's Cultural Values and Economic Development: A Discussion," *Economic Development and Cultural Change*, Vol. 7, No. 1 (October, 1958), pp. 1-12.

social and political structure. He says, "It is not unlikely that the failure of Indians to improve their material condition lay in the social and political institutions of the country."[21] He suggests that the rigidity and inequities of the institution of caste was probably one of the obstacles that blocked the country's progress.

It may be stated that numerous conditions and causes, cultural, social and economic, including historical antecedents and circumstances may have conjointly hampered economic development in India. There does not seem to be anything inherent in the Indian view of life which obstructs material progress and achievement Whether a particular ethic should precede economic development or be its result is a moot question. It is believed that the said obstacles to Indian economic development are not insurmountable and are susceptible to change. The recent progress India has made in all directions demonstrates that she is changing and the urban areas have proved to be centers of innovation and change. The role of urbanization in cultural and social change has come into operation.

In summary, it may be stated that Indian urbanization, in relation to her economic development has been slow. Agricultural and industrial production are inadequate to meet the growing needs of the population Some historical circumstances, and social and cultural factors have slackened India's development. Urbanization is forging ahead and seems to play a dominant role in the social change under way.

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21 *Ibid.*, p. 5.

CHAPTER III

RESEARCH TECHNIQUES

It has been argued that urbanization produces important changes in occupation, literacy rate, level of living and residence, and these changes effect significant change on fertililty. It has also been stated that the objective factors involved in the process of change are the concern of this study. The design of the study, the source of data, the measure for each variable and the method of computing correlations of the variables are discussed in this chapter.

The sources of data for this study are the Indian Censuses of 1931 and 1951 and the District Census Handbooks. The study covers a period of twenty years and comprises eleven major states. Between the period 1931 and 1951 many territorial changes such as mergers, redistributions and territorial adjustments among the existing states have taken place. Some of the states not included in the study are very small and may be equivalent to districts whereas some others have undergone major territorial changes. In order to facilitate a comparative study of the variables between 1931 and 1951, the states least affected territorially were brought into the study.

The unit of analysis of the variables is the district, and for the purpose of determining the relationship between the variables, the districts comprising each state were grouped together. The study covers 204 districts in 1931 and 227 in 1951. Though the same number of states were involved in the study, there was an increase of twenty-three districts in 1951 over 1931 due to the merger of some of the small adjacent states. Within the availability of data, highly urbanized centers were also brought into the study. In 1931, twenty-six Class I and thirty-seven Class II cities, and in 1951, twenty-six Class I cities were analy-

zed.[1] The districts and cities examined are in a large measure representative of India as a whole.

Urbanization

In the provincial volumes of the Census under the heading "areas, Houses and Population," the population is enumerated for each district on a breakdown of rural and urban. Percentages were computed for the proportion of urban to total population for each district in 1931 and 1951. These percentages for the districts and the total population for the cities were taken as the measure of urbanization.

Non-Agricultural Occupation

In the 1951 Census, under the heading "Livelihood Classes and Sub-Classes," two clear-cut classifications, namely 1) Agricultural classes, and 2) Non-agricultural classes, are detailed. In the 1931 Census, under the heading "Occupation or Means of Livelihood," three main classifications are given. They are : (a) Production of raw materials (b) Preparation and supply of material substances under which industry, transport and trade are included, (c) Public administration and liberal arts. The categories (b) and (c) were taken to represent non-agricultural occupations. Percentages were computed for the proportion of the total non-agricultural earners or self supporting persons to total earners for each district and city for 1931 and 1951.

Literacy

In the table "Age and Literacy," the total number of literates for the whole population for each district and city is given for 1931; whereas for 1951, the total number of literates is given for a ten percent sample of the population. Percentages were computed for the proportion of the total literates to the total population for each district and city for 1931 and 1951.

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1 Class I cities are cities with a population of 100,000 and more. Class II cities are cities with a population between 50,000 and 100,000.

Migration

Rural-urban migration data are not available in the Indian Census, but for the period 1941-1951, the rural-to-urban migration for all the towns was obtained from *India's Urban Future*.[2] These data give the migration of persons ten years of age and above and the rates are given separately for males and females. Both the rates are combined into one unit for the study. Migration data for Class I cities of 1951 could not be obtained from any source.

The decade 1941-1951 indicates the highest degree of urbanization ever manifested in India and it is believed that the rates of rural-urban migration for this decade are adequate enough to show significant relationships, if any, between the variables.

Level of Living

Adequate data for level of living could not be secured from any source. Estimates of the national income and the per capita income were undertaken only recently by the Government of India Some surveys were also conducted to ascertain the consumer expenditure for different regions. Even these data have not been calculated state-wise or district-wise. Apart from giving a general idea of the level of living in India, the available data are meagre to correlate with other variables.

Fertility

Fertility could not be calculated from vital statistics because of under-registration of births. The child-woman ratio, the ratio of all children under five to women of reproductive age fifteen to fifty, was therefore computed. The Population Commission of the United Nations has recommended this method of calculation.[3] Also, according to Barclay, "The child-

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2 Bogue, Donald J., and Zachariah, K.C., *op. cit.*, pp. 27-54.

3 *Fertility Data in Population Censuses*, Population Studies No. 6, United Nations, Department of Social Affairs, New York, November 1949, p. 4.

woman ratio is especially useful where there is no adequate registration of births."[4] The required data were available from the table "Age and Civil condition" which represents a ten percent sample of the total population.

At the 1931 Census, the age attained at the nearest birth day which might be either prior to the Census date or subsequent to it, was recorded. At the 1951 Census, the number of completed years of age, that is, the age completed at the last birthday was ascertained. Therefore, in comparing the two censuses with respect to age, an artificial difference of five months may have been reckoned in some cases. It can be assumed, however, that in using mass data the positive and negative errors would tend to cancel out.

In the 1931 Census, children under five are enumerated for each district and city in four age groups, 0-1; 1-2; 2-3; 3-4; in the 1951 Census, they are enumerated in two age groups, age 0; 1-4. The total number of children for each district was calculated from the different age groups.

In the same table, "Age and Civil Condition," women of reproductive age are enumerated in different age groups. In the 1931 Census, the age groups are 15-20; 20-30; 30-40; 40-50. The total number of women 15-50 for each district for 1931 was drawn from these age groups. In the 1951 Census the age groups are 15-24; 25-34; 35-44; 45-54 and so on Having enumerated the number of women from the three age groups 15-24; 25-34; and 35-44, the remaining women of ages 45-50 were obtained from the table "Single Year Returns" which is also based on a ten percent sample. Only for one state, Hyderabad, and for Class I Cities, the single year returns are not available and hence women 15-44 only were enumerated. After calculating the total number of children under five and women 15-50 for each district and city, the child-woman ratio was computed.

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4 Barclay, George W., *Techniques of Population Analysis*. New York: John Wiley and Sons, Inc., 1958), p. 25.

Correlations

In order to test the strength of the relationship between the independent variable and the intervening variables on the one hand; and the intervening variables and the dependent variable on the other, correlations were computed by the Spearman Rank Correlation method.

Three sets of correlations were computed between Urbanization, the independent variable and the three intervening variables and they are :

1. Urbanization and Non-agricultural Occupations
2. Urbanization and Literacy
3. Urbanization and Migration.

Three sets of correlations were computed between the three intervening variables and the dependent variable, Fertility, They are :

1. Non-agricultural Occuption and Fertility
2. Literacy and Fertility
3. Migration and Fertility.

Correlations were also computed between the independent variable, Urbanization, and the dependent variable, Fertility. The correlations computed were for all the districts grouped under the different states and cities under different classes.

In conclusion, it is believed that the research techniques employed in this study will bring to light the nature of the relation ships that exist between the different variables and may also point out the direction of the development of their possible trend. The results that follow, will disclose the impact urbanization has been exerting on fertility.

CHAPTER IV

RESULTS

The pattern of the relationships obtained in the study between urbanization and the intervening variables and between the latter and child-woman ratio are presented in this section. It is also discussed whether or not the relationships are in the expected direction and whether or not the hypotheses proposed are upheld.

The study comprises eleven major states and sixty-three cities with a population of 50,000 and above. The cities are classified into Class I, having a population of 100,000 and above; and Class II, with a population between 50,000 and 100,000.

The unit of study is the district which is an administrative division in a state and for the purpose of computing correlations, they are grouped into the states to which they belong. The study involves the period between the two Census years 1931 and 1951.

The study covers 204 districts in 1931 and 227 in 1951. The increase in the number of districts in 1951 is due to territorial additions as a result of the merger of some of the princely states with the adjacent existing states. It has been found that the increase in the number of districts to some of the states in 1951 has not changed the existing conditions pertaining to the study. In the 1951 Census the names of three states have been changed as follows : United Provinces to Uttar Pradesh; Bengal to West Bengal; Central Provinces to Madhya Pradesh.

The results of the study are reviewed in two parts : the first part presents the relationships that are found between urbanization and the intervening variables ; the second part outlines those between the intervening variables and child-woman ratio.

The Rank Correlation method is used to determine the

relationships between the several variables and in each case the coefficients presented in the study are computed for data representing universes rather than samples. For this reason measures of statistical significance are not given. To provide a basis for comparison and valuation of results the magnitude of ·50 is arbitrarily selected as indicating a coefficient of meaningful size.

Urbanization and the Intervening Variables

In the discussion in Chapter One it has been suggested that urbanization as the independent variable brings about some changes in the intervening variables. It has been argued that urbanization changes the occupational structure and increases the proportion of non-agricultural occupations, increases literacy rates, produces increasing rural-urban migration, and raises the level of living. So it is expected that urbanization is directly associated with non-agricultural occupations, literacy, migration and level of living. The results of the study pertaining to three of these relationships follow. For want of sufficient data, the correlations between urbanization and level of living could not be computed.

In this study the measure of urbanization is the proportion of urban to total population for the districts, and for cities their size.

Urbanization and Non-agricultural Occupations

It has been suggested earlier that urbanization produces an impact on fertility by effecting a change in occupational structure. Urbanization increases the proportion of non-agricultural occupations and this change from agricultural to non-agricultural occupations produces changes in social organization, ways of life and on family. These changes are conducive to motivations for small families. Thus, it is hypothesized that urbanization is associated with increasing non-agricultural occupations and the latter variable bears an inverse relationship to fertility.

The results pertaining to the first part of this proposition are considered in this section and the results of the relationships of the two variables are shown in Table 17.

Table 17. Correlations Between Urbanization and Non-agricultural Occupations

States	1931		1951	
	No. of Districts	Rho	No. of Districts	Rho
Madras	26	.47	26	.53
Mysore	12	.80	12	.83
Bombay	20	.92	33	.72
United Provinces	48	.90	51	.88
Bengal	21	.88	16	.81
Assam	12	.79	17	.22
Central Provinces	22	.69	22	.68
Bihar	11	.86	17	.69
Orissa	10	.52	13	.78
Travancore-Cochin	5	.80	4	.80
Hyderabad	17	–.38	16	.17
Cities	*No.*	*Rho*	*No.*	*Rho*
Class I and II	63	.45		
Class I	26	.32	26	.53
Class II	37	.12		

In twenty-five out of twenty-six instances the relationships between these two variables are in the expected direction. In Table 17, in nineteen out of twenty-six cases the coefficients of correlations are .50 or larger. Even though some coefficients are of small magnitude, the consistent pattern of positive correlations maintained provides strong support for the proposition for 1931 and 1951. The hypothesis advanced that urbanization is associated with an increase in non-agricultural occupations is therefore confirmed. Comparison of the results obtained for states and those obtained for cities suggests that the proportion

of the population that is urban may be a more important measure of urbanization than absolute size of cities.

Urbanization and Literacy

It has been proposed in Chapter One that urbanization increases the rate of literacy. As in the case of non-agricultural occupations, it has been suggested that urbanization would be directly related to the rate of literacy. The results of the tests to assess the relationships of these two variables are shown in Table 18.

The results indicate that in twenty-four out of twenty-six cases the coefficients of correlation are in the predicted direction. Of these fifteen are .50 or above. Here also, the consistent pattern of positive relationships exhibited for the two different periods in the case of the states lends support to the

Table 18. Correlations Between Urbanization and Literacy

States	1931 No. of Districts	Rho	1951 No. of Districts	Rho
Madras	26	.73	26	.53
Mysore	12	.92	12	.84
Bombay	20	.76	33	.40
United Provinces	48	.49	51	.42
Bengal	21	.61	16	.91
Assam	12	.64	17	.30
Central Provinces	22	.88	22	.68
Bihar	11	.52	17	.85
Orissa	10	.31	13	.71
Travancore-Cochin	5	.60	4	-.10
Hyderabad	17	.48	16	.67
Cities	*No.*	*Rho*	*No.*	*Rha*
Class I and II	63	.00		
Class I	26	.18	26	.05
Class II	37	-.22		

hypothesis that urbanization is directly associated with increasing literacy. The size of city measure again shows less strength than the measure of relative urbanization.

Urbanization and Migration

Among other changes produced by urbanization, a change in residence from rural to urban has also been suggested. With an increase in urbanization, it has been claimed that there is an increase in rural-urban migration. So, it is argued that urbanization is directly related to rural-urban migration. Data are available only for states. The correlations obtained between urbanization and migration are shown in Table 19.

Table 19. Correlations Between Urbanization, 1951, and Migration, 1941–1951

States	No. of Districts	Rho
Madras	26	.14
Mysore	12	.42
Bombay	32	.37
United Provinces	50	.23
Bengal	16	.35
Assam	11	.58
Central Provinces	22	.42
Bihar	17	.22
Orissa	13	.40
Travancore-Cochin	4	.40
Hyderabad	16	.46

All the eleven cases exhibit a positive relationship though the correlations are not very high. But the pattern is regular and accordingly the hypothesis that urbanization is directly associated with rural-urban migration stands supported.

It has been observed that urbanization is highly correlated with proportions of non-agricultural occupations, literacy and migration. If two variables are correlated, variation in one is

accompanied by variation in the other. So, it is inferred that with increasing urbanization, the proportions of non-agricultural occupations, literacy and migration tend to increase.

The Intervening Variables and Child-woman Ratio

As discussed previously, the central thesis of this study is that urbanization exerts its impact on fertility by producing changes in the intervening variables of occupation, literacy, migration and level of living. So it is suggested that urbanization is directly associated with the intervening variables and the latter are inversely related to fertility. The results dealing with the first sets of relationships have already been dealt with. In the following section consideration is given to the results obtained regarding the relationships between the intervening variables and fertility. The child-woman ratio is used as an indicator of fertility. It is predicted that the intervening variables will show an inverse relationship to child-woman ratio.

Non-agricultural Occupations and Child-woman Ratio

Having shown direct relationship between urbanization and non-agricultural occupations, it is equally important for the main argument proposed in Chapter One that an inverse relationship should hold between the latter variable and child-woman ratio. Tests of the relationship and the correlations obtained are shown in Table 20.

The results indicate that fourteen out of twenty-six instances show a negative relationship in the expected direction. Out of these fourteen, only three reach .50 or above. The results show a conflicting pattern of both positive and negative relationships for both 1931 and 1951. So, there is no basis to uphold the hypothesis that the changes produced by urbanization in occupation have an inverse relationship to fertility.

Literacy and Child-woman Ratio

It has also been argued that urbanization produces changes

Table 20. Correlations Between Non-agricultural Occupations and Child-woman Ratio

States	1931 No. of Districts	1931 Rho	1951 No. of Districts	1951 Rho
Madras	26	– .10	26	.23
Mysore	12	.15	12	– .26
Bombay	20	– .63	33	– .34
United Provinces	48	.40	51	.58
Bengal	21	– .57	16	.97
Assam	12	.32	17	.72
Central Provinces	22	– .36	22	– .27
Bihar	11	.25	17	– .10
Orissa	10	–. 13	13	– .15
Travancore-Cochin	5	.20	4	– .40
Hyderabad	17	– .02	16	– .55
Cities	*No.*	*Rho*	*No.*	*Rho*
Class I and II	63	.16		
Class I	26	– .04	26	.14
Class II	37	.23		

in the rate of literacy and the results have shown a direct positive relationship between them. It has also been held that increasing literacy as a result of urbanization creates favorable conditions for reduction of fertility. So, it is expected that literacy will bear an inverse relationship to child-woman ratio. The results of the tests are presented in Table 21.

Out of twenty-six cases, twenty-three show a negative relationship in the predicted direction and six of them have as high a correlation of .50 or above. The consistent pattern shown for both periods by a large number of instances in the expected direction and the high correlations attained by a good number give strong support to the hypothesis. So, the hypothesis that increasing literacy has an inverse relationship to child-woman ratio is confirmed.

Table 21. Correlations Between Literacy and Child-woman Ratio

States	1931 No. of Districts	1931 Rho	1951 No. of Districts	1951 Rho
Madras	26	– .10	26	– .05
Mysore	12	– .30	12	– .29
Bombay	20	– .74	33	– .42
United Provinces	48	– .07	51	.28
Bengal	21	– .65	16	– .43
Assam	12	– .29	17	.27
Central Provinces	22	– .43	22	– .28
Bihar	11	– .18	17	– .28
Orissa	10	– .94	13	– .29
Travancore-Cochin	5	.40	4	- .20
Hyderabad	17	– .58	16	- .14
Cities	*No.*	*Rho*	*No.*	*Rho*
Class I and II	63	– .46		
Class I	26	– .51	26	- .25
Class II	37	– .51		

Migration and Child-woman Ratio

In the discussion on residential change it has been advanced that urbanization leads to increasing rural-urban migration. This change in residence from rural to urban involves giving up the traditional ways of life and adopting urban ways. These changes, it has been suggested create favorable conditions and motivations for small families. It has been shown that urbanization is directly related to migration. In line with the argument put forth it is expected that migration would bear an inverse relationship to child-woman ratio. The results obtained and correlations between the two variables are shown in Tables 22 and 23.

Table 22. Correlations Between Migration, 1941-1951, and Child-Woman Ratio, 1951

States	No. of Districts	Rho
Madras	26	.15
Mysore	12	– .36
Bombay	32	.03
United Provinces	50	.01
Bengal	16	– .06
Assam	11	.45
Central Provinces	22	– .29
Bihar	17	.15
Orissa	13	– .10
Travancore-Cochin	4	.00
Hyderabad	16	– .60

Table 23. Correlations Between Female Migration, 1941-1951 and Child-Woman Ratio, 1951

States	No. of Districts	Rho
Madras	26	.15
Mysore	12	- .52
Bombay	32	– .10
United Provinces	50	– .00
Bengal	16	.00
Assam	11	.11
Central Provinces	22	- .10
Bihar	17	.13
Orissa	13	– .10
Travancore-Cochin	4	7.0
Hyderabad	16	– .64

Taking male and female migrations together as shown in Table 22, in five out of eleven instances, the correlations show a negative relationship in the predicted direction and only one reaches a level of .50 or above. The correlations obtained separately for females (Table 23) show no significant improvement in the expected direction. The results indicate a conflicting pattern and there is no basis to uphold the hypothesis. So, the proposition that increasing migration bears an inverse relationship to child-woman ratio stands unsupported.

Urbanization and Child-woman ratio

The central problem of this study is to determine the impact of urbanization on fertility through the intervening variables. The relationships between urbanization and three of the intervening variables, non-agricultural occupations, literacy, and migration, have been examined with the results obtained and a positive relationship has been confirmed. Similarly, the relationships between the intervening variables and child-woman ratio have been reviewed and sufficient indications have not been forthcoming to confirm the expected inverse relationship between child-woman ratio and non-agricultural occupations and migration. The inverse relationship between child-woman ratio and literacy has been supported.

In this section an attempt is made to find out the direct relationship, if any, that exists between urbanization and the child-woman ratio. It is expected that urbanization bears an inverse relationship to the child-woman ratio. The results of the tests are shown in Table 24

Out of twenty-six cases, sixteen show a negative relationship in the predicted direction but only four of them reach as high as .50. The relationship is not clear because there are both positive and negative correlations. There are more negative correlations than positive and only one of the positive correlations is as large as .50, but this is still inadequate support for the hypothesis.

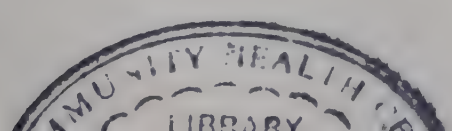
Table 24. Correlations Between Urbanization and Child-Woman Ratio

States	1931 No. of Districts	1931 Rho	1951 No. of Districts	1951 Rho
Madras	26	–.18	26	–.07
Mysore	12	–.23	12	–.50
Bombay	20	–.43	33	–.15
United Provinces	48	.39	51	.64
Bengal	21	–.52	16	–.28
Assam	12	.34	17	.49
Central Provinces	22	–.31	22	–.38
Bihar	11	.03	17	–.22
Orissa	10	–.08	13	.09
Travancore-Cochin	5	.00	4	.20
Hyderabad	17	–.29	16	–.66
Cities	*No.*	*Rho*	*No.*	*Rho*
Class I and II	63	.15		
Class I	26	–.55	26	–.08
Class II	37	.41		

The results of the study to determine the relationship between urbanization and the intervening variables, and between the latter and the child-woman ratio have been presented and examined.

On the basis of the results, direct positive relationships between urbanization and three intervening variables (non-agricultural occupations, literacy and migration) have been confirmed and this is in the expected direction.

As to the second part, the relationships between the intervening variables and the child-woman ratio, an inverse relationship between the child-woman ratio and non-agricultural occupations and migration could not be established for want of a consistent pattern of correlations. The expected inverse relationship between literacy and child-woman ratio has been



Summary

Table 25. Percentages of Correlations in the Hypothesized Direction

	Non-agr. Occupations	Literacy	Migration
Positive Rho	96.1	92.3	100.0
Urbanization .50 or above	73.0	57.6	9.0

	Non-agr. Occupations	Literacy	Migration
Negative Rho	53.8	88.4	50.0
Child-woman Ratio .50 or above	11.5	23.0	13.6

	Child-woman Ratio
Negative Rho	61.5
Urbanization .50 or above	15.3

confirmed. Between urbanization and the child-woman ratio directly, there are some indications in the correlations to show a slight inverse relationship but the pattern is not consistent.

As already observed the relationships between some of the variables are in the predicted direction whereas some are not. It would seem that the relationships are being adversely affected by some disturbing factors. So, it is thought an analysis of the results would bring to light the adverse conditions that seem to influence the expected relationships. Such an analysis and the resultant findings are considered next.

CHAPTER V

ANALYSIS AND FINDINGS

For a clearer understanding of the relationship between urbanization and the intervening variables, and the latter and the child-woman ratio, and for a better appraisal of the results, a detailed analysis is necessary. It is expected that the analysis may unfold some of the factors which probably influence the results or make the correlations appear as they do. In addition, an attempt will be made to bring in the results of empirical studies conducted in India to find out whether the results of this study are in agreement with them. Before the analysis is taken up, consideration is given to two census definitions which are in some form likely to influence the results.

Census Definition of Urbanization

The census definition of urbanization adopted in this study is mainly based on administrative demarcation and is for the purpose of census operations. According to the Indian census, a town or an urban area is delimited as, "Every municipality, all civil lines not included within municipal limits, every cantonment, every other continuous collection of houses inhabited by not less than 5,000 persons which the Superintendent of Census Operations may decide to treat as a town for census purposes."[1] This is a broad definition and may include some areas which are not strictly urban by the standard implied in this study.

In two southern states, Madras and Travancore-Cochin, for which results are not up to expectation, the pattern of density of settlements varies from the rest of India. Even in an urban locality, except for the central city, the houses are

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1 Census of India, 1951, Vol. 3 (Madras and Coorg), Part I, p. 8.

scattered and this situation makes it rather difficult to demarcate areas between urban and rural. For want of aggregated settlements, some areas in these two states may have been classified as rural though they may have urban characteristics. However, it is believed on the whole the adoption of census definitions may not produce pronounced changes in the results.

Census Classification of Non-agricultural Occupations

It is suggested that some occupations classified and included under the category of non-agricultural by the Census Commission are not strictly urban. Under industries, and services are included stock raising poultry farming, plantation industries grass and wood cutting, manual dehusking, hand-pounding of rice, flour grinding, domestic servants, cooks and gardeners. In these occupations modern technology is rarely applied, human energy is used and production is on a small scale. There is no division of labor and they are mostly confined to homes and the members of the family are the participating workers. Plantation industries in reality are agricultural. These occupations are handicrafts and are of the pre-industrial type. The presence of these industries in some areas have entitled them to be accorded urban status. It has also to be realized that the industrial and economic development in India as pointed out in Chapter Two has been in a primary state and accordingly a number of non-agricultural occupations as classified by the Indian Census cannot be legitimately included under that category by modern industrial standards. The effect of this is to show an unrealistically high proportion of the population in non-agricultural occupations, a situation which may vary considerably from one district to another.

Analysis of Urbanization and the Intervening Variables

Though the correlations in most of the states between urbanization and the intervening variables have been high and in the expected direction, they were either low or negative in a few cases. Some plausible explanations are offered in meeting

these deviations. It has not been possible to compute correlations between urbanization and the level of living. With the available data, an investigation of the relationship between these two variables is also attempted here.

Urbanization and Non-agricultural Occupations

It has already been shown that the correlations between these two variables have been high and in the predicted direction. Sufficient ground has also been found to confirm the proposed hypothesis. But two states do not fall in line with the pattern indicated by the rest.

These, Assam and Hyderabad, have been very backward in municipal administration and education. Consequently some of the districts in them tend to have small proportions of urbanization and fairly large percentages of non-agricultural occupations. In Madras state the pattern of settlements of two districts exclude some areas from the urban category even though they have larger percentage of non-agricultural occupations. In three other dry districts, cultivation is a very minor occupation for want of rainfall. Some of the occupations classified under non-agricultural are widely prevalent there. So there are some districts with small proportions of urbanization and larger proportions of non-agricultural occupations. For example, it is found that for 1951 if these districts are eliminated and correlations computed, a high correlation of .89 is obtained, otherwise it is .53. So the deviations observed as regards a few correlations, may be due to these extraneous factors.

Urbanization and Literacy

If the variation between two variables is not proportionate and if one of them outstrips the other, their relationship tends to diminish. It has been argued that in India specially during the decade 1941-51, there was over-urbanization. The exodus of a large volume of illiterate migrants to some urban areas

might have upset the literacy rates in relation to their proportions of urbanization. This might be one of the reasons for Class I cities showing a very low correlation in 1951.

Out of two cases of negative correlations, one is that of Travancore-Cochin, a very progressive state which has the highest literacy rate in India. The peculiar pattern of settlements in this state makes it possible for literacy to pervade through the entire state irrespective of rural or urban. So urbanization may not serve as a discriminating factor as regards literacy. Class II cities have also shown a negative correlation. Usually, the larger the agglomeration the higher the literacy rate, but this proposition may not hold good in all cases. Some medium size cities are progressive and contain many educational institutions and hence have opportunities for educational advancement. So they have higher percentages of literacy though their populations are not very large. Again, some cities have large industrial establishments which employ a large number of unskilled and illiterate laborers which brings down the literacy rates without altering their urban ratio. Apart from these exceptional cases, urbanization and literacy exhibited a steady relationship.

Urbanization and Migration

The correlations of these two variables have been found to be positive in all the cases but they have not been high. Though much of the aggregation in cities and urban areas is generally caused by rural-urban migration, the pattern of this movement varies. In India the biggest cities have been growing much faster than the smaller ones. It has also been found that the volume of rural-urban migration to the biggest cities was larger than that for the smaller ones. The location and distribution of big cities is such that some districts may not have big cities in them though they may have a high proportion of urbanization. If correlations had been computed between the population of cities and migration rates, the coefficients

would have been higher. In this study correlations were computed between the proportion of urban populations in districts and their rural-urban migration rates. This difference presumably keeps down the coefficients, and if so, the apparent low coefficients are unrealistic.

In conclusion, it is believed that some extraneous factors and broad definitions are responsible for a few negative and low correlations in some states. In spite of this the main pattern of the relationships involved can be clearly seen. The above clarifications have strengthened the contention that urbanization increases non-agricultural occupations, literacy rates, and rural-urban migration

Urbanization and the Level of Living

It has been advanced earlier that urbanization produces improvements in the level of living which in turn create motivations favorable to small families. Thus, it has been argued that urbanization is directly related to improvements in the level of living, but this proposition was left untested because of inadequate data. The following pertains to a discussion of this proposed relationship.

It is believed that the per capita income and the consumption pattern indicate in a large measure the level of living in India. So an attempt is made to find out the relationship, if any, between urbanization and the per capita income and consumption pattern.

The universal existence of a per capita income differential between the agricultural and non-agricultural sectors is evident from the experience of the development of advanced countries. This appears to be true in the case of India also. The per capita income in both the sectors is largely dependent on their respective productivity. The net annual output of each earner in all occupations in India is presented in Table 26.

Most of the non-agricultural occupations are centered in urban areas and the agricultural in rural areas. Since, in addition,

Table 26. The Net Value of Annual Output of Each Engaged or Occupied Person in Each Sector of the Economy[a]

	Net output per engaged person in Rupees
Agriculture	500
Mining factory establishments	1,700
Small enterprises	600
Total of mining, manufacturing and hand trades	800
Railways and communications	1,900
Banking, insurance and other commerce and transport	1,500
Total of commerce transport and communications	1,600
Professions and liberal arts	600
Government services (administrative)	1,300
Domestic service	400
Total of other services	1,100
Overall	660

[a]Owen, Roland, *India : Economic and Commercial Conditions in India*, (London : Her Majesty's Stationery Office, 1953), p. 26.

the productivity of persons in non-agricultural occupations (as seen in Table 26) tend to be greater than those in agricultural occupations, it may be expected that the average income of an urban worker will be greater than that of a rural worker. The extent to which this is true can be seen in the per capita income figures of both urban and rural groups. These figures are given in Table 27.

Quoting from *The National Income of British India*, Rosen says, "In 1931-1932 Rao found per capita incomes in urban areas three times those in rural areas (in industry alone they were only fifty percent higher than in agriculture); in 1951 output per engaged person in the non-agricultural sector was about 150 percent higher than in the agricultural sector."[2]

The above tables furnish clear evidence of a very high percentage of income among the urban population. The output

Table 27. Relative Size and Per Capita Income Levels of Urban and Rural Groups in India 1950-1951[a]

	Percentage of All-India Population	Per Capita Income of Group as Percentage of All-India Per Capita Income
Urban	17	209
Rural	83	77
Nonfarm Rural	16	93
Farm Rural	67	74
Cultivators	44	93
Laborers	23	38
Urban combined with Nonfarm Rural	33	153

[a]Coale, Ansley J., and Hoover, Edgar M., *Population Growth and Economic Development in Low-income Countries*, (Princeton : Princeton University Press, 1958), p. 133.

of an agricultural worker is much lower than that of a non-agricultural worker. Agriculture which engaged 69.8 percent of the working population of India in 1951 contributed only 51.3 percent of the national income ; while non-agricultural workers contributed the rest. Non-agricultural occupations are usually concentrated in urban areas, So, the national income from the urban sector and the per capita income of an urban earner is considerably more than the national income from the rural sector and the per capita income of a rural worker. Consequently, assuming continuing industrialization, as urbanization increases the per capita income and the level of living are likely to increase.

It has been argued that the consumption pattern and expenditure is another indicator of the level of living. The details of consumer expenditure for rural and urban India as obtained by the National Sample Survey are presented in Table 28 and 29.

It is assumed that the higher the level of living, the lower the percentage of expenditure on food items. In both rural and

Table 28. Pattern of Consumer Expenditure as Percentage of Total Expenditure in the Rural Areas as Obtained in the First, Second, Third and Fourth Rounds[a]

All India (Rural) Percentage of Total Expenditure

Items	First Round Jul. 1949 - Jun. 1950	Second Round Apr. -Jun. 1951	Third Round Aug.-Nov. 1951	Fourth Round Apr.-Sept. 1952
Foodgrains	38.70	39.42	39.82	40.57
Pulses	3.58	4.02	3.89	3.82
Milk and Milk Products	7.77	6.11	6.55	6.30
Meat, Egg and Fish	2.15	1.91	1.94	1.96
Other Food	*14.11*	*14.50*	*11.36*	*10.50*
Food Total	66.31	65.96	63.56	63.15
Education	0.30	0.53	0.66	0.79
Medicine	0.80	1.55	1.32	1.59
Ceremonials	7.21	4.83	6.04	5.69
Miscellaneous	*25.38*	*27.13*	*26.42*	*28.78*
Nonfood Total	33.69	34.04	34.44	36.85
Number of sample villages	1,085	1,142	905	946
Number of sample households	3,141	10,870	5,080	8,545

[a]Abridged from *The National Sample Survey*, No. 18. Tables With Notes On Consumer Expenditure, (Delhi : Cabinet Secretariat, Government of India, 1959). p. 4.

urban samples a consistent, gradual decline in expenditure for food items and increase in non-food items is noticed from one round to another. It has already been shown that urbanization has been on the increase in India year after year. So, as urbanization increases, the percentage of expenses on food items

Table 29. Pattern of Consumer Expenditure as Percentage of Total Expenditure in the Urban Areas as Obtained in the Third and Fourth Rounds[a]

All India (Urban) Percentage of Total Expenditure

Items	Third Round Aug. - Nov. 1951	Fourth Round Apr. - Sept. 1952
Foodgrains	19.77	20.66
Pulses	3.09	2.52
Milk and Milk Products	8.65	8.27
Meat, Egg and Fish	3.09	3.20
Other Food	*18.42*	*15.18*
Food Total	53.02	49.83
Education	2.19	2.93
Medicine	2.65	2.89
Ceremonials	5.74	4.71
Miscellaneous	*36.40*	*39.64*
Nonfood Total	46.98	50.17
Number of sample towns and cities	53	53
Number of sample households	1,690	3,877

[a]Abridged from *The National Sample Survey*, No. 18, Tables With Notes On Consumer Expenditure, (Delhi: Cabinet Secretariat, Government of India, 1959), p. 5.

diminish and that on non-food items increase. In other words, if our reasoning is correct, with an increase in urbanization, there is a rise in the level of living even in the rural areas.

The main difference between rural and urban patterns of consumption lies in the proportion of expenditure devoted to all food items. The percentages for milk, milk products, meat, egg and fish in urban areas are greater than the corresponding percentages for rural areas. Among the non-food groups of

items maximum difference in expenditure between the two sectors is observed in the case of rents and taxes. The urban consumer also spends considerably more than his rural counterpart on clothing, education, amusement and conveyances. The difference in the pattern of consumer expenditure between the rural and the urban consumer shows a difference in the level of living in favor of the urban consumer.

The consumer expenditure per person per month for cities, towns and villages is presented in Table 30.

Table 30. Consumer Expenditure in Rupees Per Person Per Month for Cities, Towns, Villages in Indiaa

Items	Rupees per person per month			Percentage of total Expenditure		
	Cities	Towns	Villages	Cities	Towns	Villages
Foodgrains	5.59	6.20	8.70	12.96	22.13	40.57
Pulses	0.83	0.74	0.82	1.92	2.64	3.82
Milk and Milk Products	4.09	2.25	1.35	9.48	8.03	6.30
Meat, Egg and Fish	1.77	0.85	0.42	4.10	3.03	1.96
Miscellaneous	*6.58*	*4.26*	*2.25*	*15.25*	*15.20*	*10.50*
Food Total	18.86	14.30	13.54	43.71	51.03	63.15
Education	1.45	0.80	0.17	3.36	2.86	0.79
Rent	3.28	0.86	0.30	7.60	3.07	1.40
Taxes	1.81	0.52	0.07	4.19	1.86	0.33
Miscellaneous	*17.75*	*11.54*	*7.36*	*41.14*	*41.18*	*34.33*
Nonfood Total	24.29	13.72	7.90	56.29	48.97	36.85
Total	43.15	28.02	21.44	100.00	100.00	100.00
Number of sample households	694	3,183	8,545	694	3,183	8,545

[a]Abridged from *The National Sample Survey*, No. 18, Tables With Notes On Consumer Expenditure, (Delhi : Cabinet Secretariat, Government of India, 1959), p. 7.

An examination of the complete table points to the fact that the per capita expenditure on fuel, light, clothing, education services, rent and taxes increased appreciably from villages through to towns and cities. The tendency towards declining proportions is noticed more sharply for food items. The per capita expenditures on non-food items are Rupees 7.9 and Rupees 24.3 in villages and cities respectively. In all, the consumer expenditure for a month for a villager is Rupees 21.4 whereas for a city dweller it is Rupees 43.2.

The data furnished indicate notable differences in the consumption of a well balanced diet, and amount of money being spent on education, health and services with villages being least favorable and towns most favorable. In all the surveys on consumption pattern, the expenditure per consumption unit and the expenditure on non-food items is higher in the more developed regions of the country. The progressive increase in better food, amenities, education and services from villages through to towns and cities confirms the proposition that urbanization improves the level of living.

It is observed that the stratum of population in the higher expenditure levels is very much larger in urban than in rural areas. The percentage distribution of households, population and consumer expenditure according to different levels are shown in Table 31.

The table reveals the contrast in the level of living between urban and rural as indicated by the different levels of expenditure in which the population is grouped. In rural areas there is a greater concentration of population in lower expenditure levels. About fifty percent of the people in rural areas were living in households which spend only up to Rupees one hundred a month. This population for the urban areas is about thirty-nine percent. Only about three percent of the people in rural areas were spending over Rupees five hundred a month as compared with about six percent for the urban areas. Judged by the levels of expenditure, there seems to be

Table 31. Percentage Distribution of Households, Population and Consumer Expenditure by Levels of Monthly Household Consumer Expenditure in Rural and Urban Areas in India[a]

Household Expenditure per Month in Rupees	Percentage Distribution					
	Rural			Urban		
	Household	Population	Share of Total Expenditure	Household	Population	Share of Total Expenditure
1 - 50	29.15	18.51	8.93	21.21	10.86	5.22
51 - 100	33.83	31.21	23.16	32.57	27.85	17.15
101 - 150	17.70	19.99	20.26	18.46	19.90	16.29
151 - 300	14.79	21.26	27.91	18.80	25.47	27.60
301 - 500	13.38	6.21	11.67	5.82	9.58	15.58
over 500	1.15	2.82	8.07	3.14	6.34	18.16
All levels	100.00	100.00	100.00	100.00	100.00	100.00

[a] *The National Sample Survey*, No. 18, Tables With Notes On Consumer Expenditure, (Delhi : Cabinet Secretariat, Government of India, 1959), p. 14.

a larger population with a higher level of living in urban areas than in rural. Urbanization therefore produces improvements in the level of living. Among the urban localities themselves the pattern of consumer expenditure varies according to the size of the city. The consumer expenditure for four metropolitan cities in order of their size is presented in Table 32.

Table 32. Consumer Expenditure in Rupees for a Period of Thirty Days by Items of Consumption And by Different Cities[a] (Calcutta, Bombay, Madras and Delhi)

	Calcutta	Bombay	Madras	Delhi
Food Total	21.60	20.99	19.09	15.48
Nonfood Total	21.06	17.93	14.61	13.57
Total	42.66	38.92	33.70	29.05

[a] *Sankhya, The Indian Journal of Statistics*, Series B, Parts 3 and 4, Vol. 24 (February, 1962), p. 364.

The total expenditure on food items shows a declining trend from the biggest city; the expenditure on non-food items indicates an upward trend from Delhi onwards to Calcutta. Again, the total expenditure on all items shows a fall from Calcutta, the biggest city, to Delhi, the city fourth in size. A perusal of the working class consumer price index for the cities shows that the index numbers for Delhi and Madras are the same, Calcutta has the lowest and Bombay the highest. So it is presumed that the total consumer expenditure of those cities does not reflect the level of the cost of living but the level per capita income.

It can be maintained that the level of monthly per capita consumer expenditure is a close index of the level of per capita income. It has been shown that the per capita income and the consumer expenditure of an urban dweller is higher than that of a rural person. Even within the urban localities, there is variation from towns to cities and among cities themselves. The data indirectly shows the rural-urban and intra-urban income differentials. So, urbanization is directly related to improvements in the level of living.

The presented data on rural and urban per capita income and that on consumer expenditure are for the period 1950 and after. It is believed that the same trend must have been prevailing from 1931 to 1951, though there might have been some general improvement in the standard. The National Sample Survey embraces the whole of India and it is held that the results of the survey show the true consumption situation in the country. The hypothesis that urbanization is directly associated with improvements in the level of living stands supported.

The Intervening Variables and the Child-woman Ratio

In the previous section the results obtained regarding relationships between urbanization and the intervening variables have been analyzed. In the following the results of the tests with regard to the relationships between the intervening variables and the child-woman ratio will be analyzed in an

attempt to explain why some of the correlations obtained are not in the expected direction and why some of them are low.

Non-agricultural Occupations and Child-woman Ratio

The results of the study pertaining to the relationships of these two variables indicate a conflicting pattern ; some correlations are in the expected direction, while others are not. Probable reasons are advanced to explain this discrepancy. Studies relating to occupation and fertility are brought into the discussion with a view to compare the results.

Earlier in the discussion mention has been made that many of the occupations classified as non-agricultural are handicrafts and cottage industries and of the pre-industrial type. So, a clear-cut fertility differential between agricultural and non-agricultural occupations is probably not discernible at this stage of India's development. Consequently, it has been argued that the results of the study do not have adequate evidence to establish an inverse relationship between non-agricultural occupations and child-woman ratio.

Several studies conducted in India to determine the relationship between occupation and fertility corroborate to a large extent the findings of this study. Using Census data, Davis to begin with found some variations in child-woman ratio among the different occupational class. His results are presented in Table 33.

The groups pursuing trade, profession, agricultural owners and tenants seemed to have lower child-woman ratio compared to artisans, laborers and servants. But Davis declares, "When the married women alone were used in getting the ratio, the difference between the various occupational groups virtually disappeared. Again the explanation seems to lie in the widow ratio."[3] In the occupational groups which have a low child-

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3 Davis, Kingsley, *The Population of India and Pakistan*, (Princeton : Princeton University Press, 1951), p. 75.

Table 33. Child-Woman Ratios of Castes Classified by Occupation, 1931[a]

Occupation of Majority of Caste Members	Children 0-6 per 1000 women 14-43	Children 0-6 per 1000 married women, 14-43	Widows per 1000 married women
Trade	771	1,016	191
Professions	719	1,032	227
Laborers	802	1,038	149
Agriculturists	817	990	157
Owners and Tenants	754	951	197
Field Laborers	873	1,020	118
Servants, Scavengers etc.	818	1,912	129
Artisans	869	1,052	132

[a] Davis, Kingsley, *The Population of India and Pakistan*, (Princeton: Princeton University Press, 1951), p. 75

woman ratio, the widow and spinster ratios seem high. Even if the occupations enumerated in the table are broadly classified into agricultural, and non-agricultural, the difference in the child-woman ratio is not significant.

In a survey of Poona district conducted by the Gokhale Institute, the results for Poona City showed that the observed number of children for manual occupations was more than the expected number, whereas for non-manual labor, the higher professions and salaried employment, the observed numbers were smaller than those expected.[4] In the fertility survey of Kolhapur City conducted by the same institute, the results were the reverse. "When women are classified by the occupation of

[4] Dandekar, V.M., and Dandekar, K., *Survey of Fertility and Mortality in Poona District*, (Poona:Gokhale Institute of Politics and Economics Publication No. 27, 1953), pp. 63-64.

the head of the family, it is found that in the four lower grades of occupations, the observed births are fewer than the expected while in the higher grades they are more.[5]

In another survey of four districts in the same state of Bombay, Sovani and Dandekar, found that occupation had no differential effect on fertility both in rural and urban areas[6]. Assuming that the age of the woman was the primary factor, occupation and other socio-economic factors were tested as to their differential effect on fertility. Birth rates were found to be independent of both occupation and income.

The results obtained in a socio-economic survey of Calcutta City sponsored by the Planning Commission and conducted by the Economics Department of Calcutta University are shown in Table 34.

Table 34. Last Occupation of Father and Average Number of Children Born to Mother[a]

Occupational Groups	Average number of children per mother
Technical-professional-Executive (highest status)	3.77
Technical-Professional-Executive (Grade 2)	4.23
Ministerial workers	3.45
Traders (small shop owners, hawkers, pedlars)	3.45
Manual workers	3.18

[a]Mukerjee, S.B., *Studies in Fertility Rates in Calcutta*, Calcutta: Bookland Private Limited, 1961), p. 40.

This survey was carried out in a very big industrial city among non-agricultural occupations. Manual workers seem to have lowest fertility; the clerical end technical-professional-executive of lower status, the highest. The results of this study

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5 *Ibid.*, p. 68.

6 Sovani, N.V., and Dandekar, K., *Fertility survey of Nasik, Kolaba and Satara (North) Districts*, (Poona: Gokhale Institute of Politics and Economics, Publication No. 31. 1955), pp. 66-79.

refute the common belief that people who pursue higher professions have fewer children. Among the higher professions the beginning of a decline is observed only at the highest level.

The Mysore Study did not find for Bangalore City any significant relationship between the occupation of the husband and the average number of children born.[7] In a survey to investigate the total number of children born per couple at selected years after marriage stages for agricultural and non-agricultural classes, the National Sample Survey found the number of children born for non-agricultural groups slightly higher. The report says, "The fertility performance of the non-agricultural class appears slightly higher; but the wife's age at marriage is also slightly higher in the non-agricltural class and the fertility differential wears off in the 7-12 years marriage duration period."[8]

In 1958 Driver conducted a study of rural and urban samples in Central India to discover fertility changes, if any, which result from occupational changes. It was found that artisans, clerks, professionals and agriculturists (owners and tenants) had identical average of 4.8 children. Traders and laborers (agricultural and non-agricultural) had 4.6. His study also reveals that widowhood and remarriage are not significant factors affecting fertility rates among occupations. He sums up saying, "Among occupational groups, there is very little difference in fertility"[9]

The results of the studies referred to appear conflicting and taken together they do not establish a uniform pattern of relationship between occupations and fertility. Commenting on the

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7 *The Mysore Population Study*, Population Studies, No. 34, (New York: United Nations, 1961), p. 128.

8 Gupta, A.D., Som, R.K., Mujumdar, M., Mitra, S. N , *The National Sample Survey*, No. 7: Couple Fertility, (New Delhi: Department of Economic Affairs, Ministry of Finance, Government of India, 1955), pp. 43-44.

9 Driver, Edwin D., "Fertility Differentials Among Economic Strata in Central India," *Eugenics Quarterly*, Vol. 7, No. 2 (June, 1960), p. 80.

lack of agreement of those studies, Driver says, "It could be attributed on the one hand, to genuine sectional or regional variation in the relationships, and, on the other hand, to differences in measuring fertility and economic classes."[10]

India is a vast country and there are regional and group variations regarding socio-economic factors relating to fertility. To some extent social and cultural factors differ from one state to another. There are variations in urbanization, industrial development and the kind and level attained by non-agricultural occupations. In some states they have reached a fairly high level and consist of a large portion of industrial, professional, commercial and service groups. In less advanced districts and states these groups will be less. Some of the low and positive correlations obtained in this study may be attributed to regional variation in the type and level of non-agricultural occupations.

In Chapter Two it has been pointed out that the progress of industrial development in the country has not displayed features of a developed economy. There were a relatively small number of workers in industrial, professional and clerical occupations, and large numbers in small business, cottage industries, manual labor and personal services. So, it is argued that at the level of non-agricultural occupations as they have been in the period under study, substantial social and cultural changes which could lead to motivations for small families could not be expected. The changes produced by urbanization in occupational structure are not sufficiently important so as to exert a noticeable impact on fertility.

In summary, it may be said that in substance the results of this study concur with the findings of the empirical studies referred to in the discussion. The low and few positive correlations are due to regional variations in factors affecting fertility and the undeveloped nature of some of the non-agricultural

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10 *Ibid.*, p. 79.

occupations in some districts as well as in some states. No marked fertility differential has been found by the studies between agricultural and non-agricultural occupational groups. Finally, it is assumed that a significant inverse relationship does exist at the highest level between non-agricultural occupations and child-woman ratio. A few selected non-agricultural occupations which demand highest professional training or educational accomplishments and which yield high income and confer high social status are expected to show the relationship. Such a group is too small in the large non-agricultural occupational class to produce any appreciable change in the child-woman ratio.

Literacy and Child-woman Ratio

While considering the results concerning the relationships between these two variables, a consistent pattern in the predicted direction has been observed, but in a few cases the correlations have been low and in two cases they have been positive. In the analysis that follows explanations are offered in meeting these deviations and relevant studies are cited so as to evaluate the findings of this study.

In the survey conducted by the Gokhale Institute in Poona City in 1951, there were clear indications that fertility varied with different levels of education. Both among the illiterate women and those educated only up to high school the observed number of children was more than the expected; and the difference was larger in the case of illiterates. For women educated above high school, the observed number of children was less than the expected.[11]

The Mysore Population Study reports a similar finding. The report says, "Among the social and economic factors studied, the one which appeared to be most significant in relation to fertility in Bangalore City was educational status.

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[11] Dandekar, V.M., and Dandekar, K., *op. cit.*, pp. 65-6.6

Ever-married women aged forty-five years and over with high school or university education had given birth on an average to 4.0 children compared to 5.4 for those with less education. Educational status below the high school or university level was not found to be related significantly to the number of children born."[12]

A survey was conducted by the Indian Statistical Institute in 1956 among six hundred rural households and five hundred Calcutta City households to ascertain the association of socio-economic factors to fertility. The couples studied were divided into groups according to the levels of education attained by husband and wife; the lowest group represented both husband and wife illiterate and the highest, both highly educated. A positive association between education and fertility was observed from the lowest group up to a certain level in both rural and urban samples and then there was a substantial fall in the number of children born at the level where both husband and wife were highly educated. Commenting on this trend, Datta says, "The pattern of variation in fertility clearly indicates that up to a certain critical level the positive association between fertility and educational status must have arisen due to factors associated with the rise in levels of living conducive to high fertility and thereafter education plays an important role in moulding the attitudes of couples to make conscious efforts in reducing fertility."[13]

In India education has been indirectly instrumental in raising the age of women at marriage which has been found to influence fertility. An association of higher age at marriage with lower fertility has been observed in several studies. Several demographic surveys were conducted by the Gokhale Institute during 1951-55 to determine the effect of different factors on fertility. According to Bhate, "Among all the factors, age of

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12 *The Mysore Population Study*, op. cit., p. 128.

13 Datta, Subodh, "Differential Fertility in West Bengal in 1956", *Artha Vijnana*, Vol. 3, No. 1 (March, 1961), p. 78.

the woman was found to be the primary factor affecting fertility."[14] Among married women, 2,651 in urban and 11,451 in rural samples, a lower fertility was observed for those married between ages thirteen and seventeen.[15]

The Mysore Study confirms most of these findings. It was found that higher education for women was very closely associated with an increase in their age at marriage.[16] Women who married late had on the average fewer children than those who married early.[17]

The knowledge as well as effective use of modern methods to limit family size is mostly confined to highly educated class and this has been confirmed by the Mysore Study.[18] In an analysis of the fertility levels of three villages in West Bengal among three groups, Nag found that the Sheikh Muslims who were highly educated and were in the highest occupations wanted to use modern contraceptives and limit their families.[19]

The important conclusions reached by all the studies cited may be summed up in these propositions. Education raises the age at marriage, educated persons usually marry late, they have the knowledge and practical use of the methods of family limitation and they have been found to have small families. So education, specially higher education was found to be inversely related to fertility.

The findings of the studies reveal that unless education reaches a higher level, it cannot have any effect on fertility. This suggests a probable explanation for the low correlations in some of the states. In 1950-51, the percentage of total popula-

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14 Bhate, V., "Differential Fertility," *Artha Vijnana*, Vol. 3, No. 3 (September, 1961), p. 225.

15 *Ibid.*, p. 227.

16 *The Mysore Population Study, op, cit.* p. 108.

17 *Ibid.*, p. 129.

18 *Ibid.*, p. 172,

19 Nag, Mom, *Factors Affecting Human Fertility in Nonindustrial Societies: A Cross-Cultural Study*, (New Haven : Yale University Publications in Anthropology, No 66, 1962), p. 60.

tion enrolled in high school was only 1.4 in India and the percentage enrolled in colleges and universities was only 1. Persons with high school or above education form a very small group and are mostly concentrated in urban localities. The National Sample Survey undertook to estimate the percentage distribution of the educated among the literates of 40,412 rural and 85,266 urban samples. The results as recorded by Sovani show that the number who matriculate and above in the total urban population was eleven times more than that in the rural population. It was also found that the proportion of literates and highly educated steadily increased as the size of the urban centers increased.[20] So, urbanization not only increases literacy rates but also the number of highly educated people who are found to have small families. In India literacy has not attained the level where it could exert its influence on fertility and this is more true in some states where the rates of literacy are apallingly low. This explains why some of the correlations between literacy and child-woman ratio are low.

In this study correlations were computed between literacy rates which include all levels of education and child-woman ratio. If it had been possible to secure the percentages of those educated to high school and above, and correlations computed, higher coefficients could have been obtained.

Another important point which emerges from a review of the studies is that education alone by itself cannot produce the desired effect on child-woman ratio. Usually higher education and a higher level of living go together but this is conditioned by general advanced economic development. One of the unexpected results of this study is a positive correlation for Travancore-Cochin, the state which had forty percent literacy the highest in India in 1951. This deviation is not inexplicable. This state has the highest number of educated unemployed, the

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20 Sovani, N.V., "The Urban Social Situation in India," *Artha Vijnana*, Vol. 3, No. 2 (June 1961), p. 93.

density is very high and population pressure on land is very acute. Consequently the level of living is low. Hence, higher education combined with a high level of living in a setting of a developed economy only could produce a marked change of fertility.

In summary, it is argued that the results of this study are in agreement with the implications emanating from the surveys cited. Though there is very strong ground for expecting that literacy is associated with fertility, an inverse relationship between the two variables could be expected only when education attains the highest level in a developed economy and all states and cities in India have not yet reached that stage.

Migration and the Child-woman Ratio

It was stated earlier that a change of residence from rural to urban involves changes in social organization and ways of life, and the latter changes create favorable motivations for smaller families. So an inverse relationship between migration and the child-woman ratio would be expected. The results of this study display a conflicting pattern of both positive and negative correlations. In the following section the discussion is continued to see whether explanations could be found in support of the results.

The age composition of the rural-urban migrants and the length of their urban residence are two important factors which tend to affect their fertility and eventually the urban child-woman ratio. If a large number of migrants belong to the younger age bracket, then their reproductive capacity is likely to produce an increase in the urban population at least temporarily. Analyzing rural-urban migration to four metropolitan cities between 1941-1951. Bogue and Zachariah found that "The maximum numbers of net migrants are in the age group 15-19 years or 20-24 years (age as of 1951), usually the latter. The rate of migration also reaches the maximum at about the

same age."[21] The unprecedented volume of rural-urban migration in the decade 1941-1951 to some extent might have upset the urban child-woman ratio and hence it is not surprising that some of the correlations have been either very low or positive.

The Indian Statistical Institute conducted a study among three hundred Calcutta City couples to investigate the association between the degree of urbanization and fertility. The couples were classified into three groups:

1. husband and wife urban since birth.
2. husband migrated before marriage, wife migrant.
3. husband migrated after marriage, wife migrant.

Between the first and second group, the average number of children born and surviving did not show much difference. But both the first and second groups had lower fertility rates compared to the third, and the difference was considerable.[22]

A pilot study undertaken by the Indian Statistical Institute to examine the relationship between occupational mobility and its demographic effect found that "The sons of cultivators who migrated into cities eventually to become manual laborers or to enter lower professions and services had an appreciably lower fertility."[23]

The two studies cited confirm the fact that rural-urban migration has some relationship to fertility. The first study emphasises the time element, the period lived in an urban area as an important factor in relation to fertility change. In the present study correlations were computed between migration rates for the period 1941-1951 and the child-woman ratio but there is no control over the length of time the migrants have lived in the city. The period involved is not long enough in

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21 Bogue, Donald J., and Zachariah, K.C., *op. cit.*, p. 43.

22 Datta, Subodh, *op. cit.*, p. 71.

23 Poti, S. J., and Datta, S., "Pilot study on Social Mobility and Its Association With Fertility in Bengal in 1956," *Artha Vijnana*, Vol. 2, No. 2 (June, 1960), p. 92.

many cases to produce the necessary social and cultural changes required to produce a uniform inverse relationship to the child-woman ratio for all the states. But the hypothesis that increased rural-urban migration is associated with demographic change finds strong support in other studies.

Level of Living and the Child-woman Ratio

As mentioned earlier correlations could not be computed for these two variables for want of required data regarding the level of living. Nevertheless, with the support of the available data it has been possible to establish the proposition that urbanization produces improvements in the level of living. In this section consideration is given to how improvements in the level of living bear a negative relationship to child-woman ratio.

It is believed that only after a certain level of living is attained will a negative association between fertility and economic status be observed as was the case with the developed countries. There is reason to believe that with a rise in the level of living in the underdeveloped countries there will be a parallel advancement in occupational status and the level of education. But until that point is reached, the child-woman ratio seems to rise with the level of living, specially among the poorer sections of the population. However, this may result from a decline in childhood mortality rates rather than an increase in fertility.

Using the type of dwelling as an index of economic status of the family, the Mysore Study found a positive association between the child-woman ratio and a high level of living. Women living in better housing, who have completed their reproductive age, were found to have 5.0 living children whereas those living in poor housing had only 4.5. Among the agricultural class, the average number of children seemed to increase with the size of land holdings.[24] But it is stated that the differences proved small when widows were eliminated and calculations confined only to women who have completed their

reproductive period. In short, except for the differences created by widowhood, there is not much difference in the child-woman ratio between the different strata in the level of living. But significantly enough the report concludes that there is actually a higher fertility involved rather than being explained just be a lower child mortality : "The birth rates of most well-to-do elements of the city population are especially low."[25]

The results of the fertility survey of Kolhapur City as reviewed by the Dandekars also indicate a positive association between fertility and high incomes. They say, "In almost all income classes with anual incomes less than Rupees five hundred, the observed births are smaller than the corresponding expected. On the other hand, in almost all classes with annual incomes more than five hundred rupees, the observed births are more than the expected births. This would mean that it is the higher income classes which are liable to higher fertility."[26] The group with annual income more than five hundred rupees appears a broad category. If further subdivisions could be possible in this group according to higher incomes, what could be the nature of fertility of the highest income group ?

In all the rounds of the socio-economic survey conducted by the Calcutta University from 1954-1958 when the income of fathers and the number of children were used as the two correlates, it was observed that the lowest income group had the smallest number of children. Of the five income groups used in the study, a positive correlation was found between higher incomes and size of the family up to the fourth higher group. In the fifth and highest income group, a smaller number of children was observed. It was suggested by the author of the study that if the fifth group had been further split into smaller groups and analyzed, it was probable that in the highest group there could have been an association between higher

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24 *The Mysore Population Study, op. cit.*, p. 128.

25 *Ibid.*, p. 87.

26 Dandekar, V.M., and Dandekar, K., *op. cit.* p. 67.

incomes and smaller families.[27] Since wealthy families would have lower child mortality rates, these small families must result from low fertility.

In Driver's study in central India to determine the possible relationship between income and fertility, he concludes that "Although fertility is high in the medium income category and in the large land ownership group, neither income nor land ownership bears a linear relationship to fertility."[28]

A survey conducted by the Indian Statistical Institute among six hundred rural and five hundred Calcutta City households to analyze the relationship between the level of living of the couples, as measured by their income, and fertility, it was found that "In all cases the observed fertility rates for the high income stratum are higher than those observed for the low income stratum."[29]

All the studies confirm a positive relationship between fertility and income up to a moderate standard of living. The fact that fertility tends to decline when a very high level of income is reached, implies that at the highest level a probable inverse relationship may exist.

It is common knowledge that India's per capita income is one of the lowest in the world. In 1931-32 it was estimated to be sixtyfive rupees and in 1950-51 it has risen to Rupees 265. No doubt there has been a rise since 1931, but it is not significant enough to raise the level of living to the extent of influencing fertility. As discussed earlier, the consumption pattern of the people underlines the low level of living. A high percentage of the consumer expenditure has been found on food items and in the rural areas the percentage has been more. Items like education, conveyance, recreation, health and services accounted for only small fractions. Most of the food consists of cereals and pulses and the consumption of proteins

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27 Mukerjee, S.B., *op cit.*, p. 36.

28 Driver, Edwin D., *op. cit.* p. 83.

29 Datta, Subodh, *op. ait.* p. 73.

and fat is extremely inadequate giving altogether only about 1,750 calories a day.

Though urbanization has been effecting improvements in the level of living as shown earlier, it is believed that the latter is not yet high enough to exert an appreciable effect on fertility. When that level is attained, other factors like education, high professional status and urban residence have been found to co-exist with a high level of living, and all these factors are conducive to lower fertility.

In summary, it may be said that most studies report a positive relationship between income and fertility, but some surveys found a positive relationship only up to a level where a fairly high standard of living has been attained. Beyond that, and at a very high level of living, fertility has been known to decline. In India only a very small proportion of the population enjoys this level of living; in general the level of living has not risen enough to produce an inverse relationship to fertility.

Urbanization and the Child-woman Ratio

When the results of the study were discussed earlier, it was stated that the correlations between these two variables have not shown any consistent pattern and there have been both positive and negative correlations. The relationship between these two variables is crucial to this study because it is one between these two independent variable and the dependent variable. The discussion that follows attempts an analysis of the results in relation to some of the studies undertaken in India to determine rural-urban differential fertility.

Demographers are agreed that there has been rural-urban differential fertility in India and most of them suggest that the difference has been slight. Using Census data, Davis found differences in child-woman ratio between rural and urban, and among different sizes of cities. "A fertility differential exists not only between rural and urban areas but also between larger and smaller cities. In general, as measured by the

child-woman ratio, reproduction varies inversely with size of city."[30]

The Mysore Population Study did not observe any wide difference between rural and urban fertility. "The average number of children born to women who had married once and remained married till they were forty-five years of age, was about the same for Bangalore City and the rural areas, the averages being 5.9 and 5.8 respectively." [31] Another important feature of the findings was that younger women in Bangalore City were found to have smaller averages than those in the rural areas. A trend toward lower fertility in the City as compared with the rural areas (or a widening of this differential if it existed previously) is thus suggested."[32] Also the biggest city in the state was found to have a lower birth rate compared to other towns and rural areas.[33]

In a survey of three districts in Bombay state, Sovani and Dandekar observed maximum fertility for the urban population in the age group 23-27 and for the rural in the age group 18-22. For the whole reproductive period, the differences were not wide.[34] In a study of rural households and Calcutta City undertaken by the Indian Statistical Institute in 1956, the average number of children born from rural samples was 3.41 and for urban 3.07; but the average number of children surviving for the rural areas was 2.49 and for the urban 2.52.[35] The higher infant mortality rates of the rural population has narrowed down the differences in the surviving children. Robinson claims that there was a substantial rural-urban fertility differential in 1921 and by 1951 this difference seems to have narrowed down or almost disappeard. This he attributes to larger decline in urban infant mortality rates in recent years and to increasing

30 Davis, Kingsley, *op. cit.*, p. 71.

31 *The Mysore Population Study*, op. *cit.*, p, 128.

32 *Ibid.*, p. 128.

33 *Ibid.*, p. 86.

34 Sovani, N.V., and Dandekar, K., *op. cit.*, p. 158.

35 Datta, Subodh, *op. cit.*, p. 69.

rural-urban migration, the migrants allegedly importing high fertility potential.[36]

In a study by the National Sample Survey on Couple Fertility for different stages after marriage, it was noticed that "The number of children born to the urban couple is higher at all stages after marriage, except at the longest durations." The rural-urban difference is small "Excepting the part arising out of premature marriages in the rural sector."[37] Similarly, when total number of children born per couple at selected marriage stages was analyzed by the size of towns, a small decline was noticed in fertility performance at twelve years after marriage stage in the larger urban agglomerations. Zonal and regional fertility differences were also found.

The uniform findings of all studies may be expressed in two propositions :

1. There has been rural-urban differential fertility and the difference has been small.

2. Within the urban areas, bigger agglomerations have smaller fertility rates compared to smaller ones.

The narrow rural-urban differential fertility along with the regional differences explain some of the low and the positive correlations obtained in this study.

Earlier it was pointed out that the degree of urbanization in India has been low and the pace slow. India's relative position on selected indices of economic development such as non-agricultural employment, agricultural density, urbanization, literacy and per capita income has been far behind that of other countries in the world. The infant mortality rate, which Stockwell[38] found to have the highest validity as an indicator of

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36 Robinson, Warren C., "Rural-Urban Differentials in India," *Population Index*, Vol. 26, No. 3 (July, 1960), pp. 204-205.

37 Gupta, A.D,, *et. al.*, *The National Sample Survey*, No. 7, Couple Fertility, (Calcutta: The Eka Press, 1955), pp. 38-40.

38 Stockwell, Edward G., "The Measurement of Economic Development," *Economic Development and Cultural Change*, Vol. 1, No. 4, Part (July, 1960), pp. 419-432.

economic development, has been high (in 1951 it was 124 per thousand). Consequently the degree of urbanization and the changes produced by urbanization on the intervening variables have not been significant enough to effect the expected demographic change. It may be said, then, that between 1931-1951 urbanization has made only a slight impact on fertility in India.

A practical model may be introduced to validate the arguments advanced in this study. The Parsi Community is a small, predominantly urban, highly educated group with a high level of living, with most, if not all, of its members in high industrial and professional occupations. This group appears to have the lowest birth rate in India and in 1951 their infant mortality rate was only fifty-one. The birth rate of Parsis in Bombay City declined from twenty-six per thousand in the decade 1901-1910 to seventeen per thousand in 1935-1944. The number of births per thousand married women aged 14-45 years diminished from 218 in 1911 to 160 in 1921 and 139 in 1931."[39] The changes produced by urbanization on the occupations, literacy and level of living of the Parsi Community, and by those changes in turn on their fertility, furnish a practical demonstration of the main arguments advanced in this study.

In conclusion, it may be stated that urbanization in India has not yet produced sufficient change in the intervening variables to cause a marked decline in fertility. Consequently, the relationship between urbanization and fertility is not always strongly negative. In this conclusion the results of this study are in general agreement with the findings of other studies cited. The impact of urbanization on fertility in India for the period 1931-1951 has not been significant. But what may be the nature of the impact in the next thirty years will be of continued interest and consideration will be given to that discussion next.

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[39] *The Determinants and Consequences of Population Trends*, Population Studies, No. 17 (New York : United Nations, 1953), p. 96.

CHAPTER VI

A LOOK INTO THE FUTURE

In the earlier chapters it has been argued that urbanization has been producing changes in occupational structure, literacy, migration and level of living. It was found that these changes have not been sufficient enough to produce marked fertility change and hence it has been maintained that the impact of urbanization on fertility in India between 1931-1951 has not been significant. In the following section consideration is given to ascertain the prospects of urbanization and the changes likely to be produced on the intervening variables and on fertility during the next thirty years (1951-1981).

Future Population

The future of urbanization and the changes that will be produced on all the variables largely depend on the future growth of population in India and the economic growth that can be achieved. From 1951 it may be said that India has been passing through the second stage of demographic transition when the birth rate is high and the death rate is low. India recorded a leap in her population in the decade 1951-1961. The growth of population and decennial percentage increase is given in Table 35.

Table 35. Decennial Growth of Population[a]

	Population	Decennial Growth	
	Millions	Millions	%
1931	277.4	27.4	11.0
1941	316.9	39.5	14.2
1951	359.2	42.3	13.3
1961	436.4	77.2	21.5

[a]Department of Economics and Statistics, Tata Industries Limited, *Statistical Outline of India*, 1961, (Bombay : Vora and Company, Publishers Ltd., 1961), p. 6.

India's population during the decade 1951-1961 grew sixty one percent faster than the rate at which it grew during the previous decade. Both in percentage increase and absolute increase, it was the highest increase ever recorded. More than the annual growth rate which has been between 1.5 to two percent, it is the net addition of nearly eight million every year that swells the total. The rapid decline of the death rate was instrumental to this abnormal rise. While the birth rate has been more or less unchanged, there has been a steady fall in the death rate as shown in Table 36.

Table 36. Birth and Death Rates[a] (Decennial Averages)

Decade	Birth Rate	Death Rate
1911–20	49.2	48.6
1921–30	46.4	36.3
1931–40	45.2	31.2
1941-50	39.9	27.4

[a]Ministry of Information and Broadcasting, *India, A Reference Annual, 1961*, (Faridabad: Government of India Press, 1961), p. 17.

It has been reported that the death rate has gone down to eighteen in 1961 and it is projected to fall to between fifteen and eleven within the next twenty years. But continued decline in mortality rates could not be expected without improvements in the level of living. Life expectancy is said to have risen from 31.8 in the decade 1931-41 to 47.5 in 1961.

In the European countries reductions in the death rate was achieved over relatively long periods when the level of living and production per head recorded considerable rise. In contrast to this, rapid decline in mortality rates in relatively short time with very little improvement in the level of living and with a low degree of economic development has occurred in India. This is the direct result of the advancement of medical science and improvement in public health measures and sanitation.

Generally demographers do not anticipate any substantial decline in fertility in India in the near future and on this assumption some of them have made population projections. The figures are not only staggering but they give an insight into the precarious position in which India will be placed. Some of the recent projections are presented in Table 37.

Table 37. Some Recent Population Projections for India[a] (Figures in Millions)

Year	Agarwala	United Nations	Coale and Hoover		
			Medium	High	Low
1981	626	666	588	662	549

[a]Agarwala, S.N., "Some Projections of India's Population," *India's Population*, Editor, Agarwala, S.N., (London: Asia Publishing House, 1959), p. 18.

Davis[1] stretches the United Nations' projection for Asia and estimates for India a total population of 745 million (low estimate) and one billion (medium estimate) for the year 2000.

It seems clear that the growth of population in India appears to have secured a good start and a comfortable lead. This initial start of rapid growth and a huge total is a tremendous handicap and has a dampening effect on all progress, especially economic growth.

Prospects for Economic Development

It may be said that the Industrial Revolution in India commenced in 1952 with the launching of the First Five Year Plan to be followed by a series of them. Within ten years, this planned economic development has accomplished substantial gain in economic growth. But in relation to her rapidly growing population, the achievements appear insignificant.

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1 Davis, Kingsley, "Urbanization in India: Past and future," *India's Urban Future*, Editor, Turner, Roy, (Berkeley and Los Angeles: University of California Press, 1962), Chapter II, p. 11.

Between 1950-1961 industrial production registered an increase of ninety-seven percent and this tempo is likely to continue. Agricultural production has also recorded marked progress. The area cultivated, the yield of food crops and the import of foodgrains for the decade 1951-1961 are shown in Table 38.

Table 38. Area, Yield and Import of Food[a]

Area and Yield of Food Crops

	1951-52	1960-62
Total Area of Foodgrains (Mn. hectares)	97.0	113.2
Total Yield of Foodgrains (Mn. M. tons)	52.0	80.5

Import of Foodgrains (Million tons)

1951	4.7
1960	5.1

[a] Abridged from: Department of Economics, and Statistics, Tata Industries Limited, *Statistical Outline of India*, 1961, (Bombay: Vora and Company, Publishers Ltd., 1961), pp. 11 and 26.

The area cultivated has not increased much as the area available is limited. Food production has increased from 52.0 to 80.5 million tons. In spite of it, the imports of foodgrains have also been increasing. An estimated 110 million tons of food grains will be required to feed the expected population in 1966. Small units of landholdings do not facilitate mechanized farming which will also throw out of employment a large number of agricultural workers. Already the country is faced with the problem of millions of excess rural workers. To solve this problem of rural unemployment and to supplement underemployment small scale industries are being introduced. This object of strengthening the agricultural sector may prevent occupational shift, urbanization and increase in national income. In a word, though the achievements of planned economic development are appreciable in extent, when placed against the projected population growth they dwindle into insignificance.

Perhaps the two best indices of the rate and extent of economic growth are the proportion of population engaged in agriculture and the rate of agricultural productivity. On both these criteria it is believed India will have to overcome insurmountable difficulties and the prospects do not seem bright.

Future of Urbanization

With the accelerated industrial expansion initiated by the Five Year Plans there is no reason to assume that the future of urbanization in India will slacken in pace. Assuming that the percentage growth of urban population for 1961-1981 be the average rate of growth for the previous two decades (1941-51 and 1951-61) and that the rate of increase will be uniform, the percentage of urban population for India in 1981 will be 24.1.

In 1951 there were seventy-three cities with a population of 100,000 and over and in 1961 there were 109 of them and half of the urban population were living in those cities.

Davis projects the future urbanization in India on the assumption of a logistic or 's' curve based on the model of the United States, another industrialized country which in very early stages experienced more or less the same rate of urbanization. He draws a parallel between urbanization in India in 1951 and urbanization in U.S.A. in 1858-59 with regard to the percentage of population in cities 20,000 plus and in cities 100,000 plus. Following the U.S. curve from 1858 Davis makes the following estimates for India as shown in Table 39.

Table 39. Projection of Urban Proportion Based on the United States Curve[a]

Percentage in Places

Year	20,000 plus	100,000plus
1975	19.3	13.1
2000	30.8	21,2

[a] Davis, Kingsley "Urbanization in India: Past and Future," *India's Urban Future*, Editor Turner, Roy, (Berkeley and Los Angeles : University of California Press, 1962) Chapter I, p. 11.

The future pace and extent of urbanization in India will largely depend on the growth of her population and the extent of her economic development. The rate of urbanization accelerates only after agricultural productivity begins to rise per unit of labor. If the same tempo of agricultural and industrial productions continue uninterrupted, and if birth rate shows a decline, those projections will prove more than mere conjectures.

Future Migration

The rural-urban migration is usually conditioned by two important factors: 1) the extent of urban employment available and 2) how fast and how far agricultural productivity per unit of labor increase so that more persons could be released for urban occupations. Both those factors, however, are dependent on the extent of economic growth that will be achieved.

Based on the U.N. projection of total population growth in India and on his own projection of urbanization, Davis[2] attempts an estimate of future rural-urban migration in India. On the model of U.S. rate of urbanization and according to Davis' medium estimate, there will be more than two hundred million migration between 1950-2000; the lowest estimate will be 85.6 million and the highest 258 million. These figures give the projection of only net migration into cities of 20,000 plus or 100,000 plus from outside those cities.

According to these estimates, the largest metropolitan area, probably Calcutta, will have between twelve and sixteen million in 1970 and thirty-six and sixty-six million in the year 2000. The next largest, Delhi, will have between eighteen and thirty-three milliion in 2000.

The problem of providing even the minimum amenities and

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2 Davis, Kingsley, "Urbanization in India: Past and Future," *India's Urban Future*, Editor, Turner, Roy. (Berkeley and Los Angeles: University of California Press, 1962), Chapter I, pp. 12-26.

services to this mass migration of eighty-six to 258 million people involves a colossal amount of money. The cost of housing one million migrants alone will entail two billion rupees. This means the diversion of resources for the creation of social over-heads in urban areas without corresponding returns from this expenditure. There is, therefore, the problem and the imperative necessity of developing both the rural and the urban sectors before a normal increase in rural-urban migration regularizes itself. These necessarily involve a check on the increasing growth of population.

Future of Non-agricultural Occupations

The future prospects for the increase in non-agricultural occupations is mainly dependent on industrial expansion and the creation of urban employment opportunities. The shift from agricultural to non-agricultural occupations is absolutely necessary to narrow down the income differentials between the two sectors and also to raise the national income.

The active labor force for 1951 was 139.6 million and according to Rao's projection, it will be 238.3 million in 1981 and the additional employment that will have to be created for the thirty year period (1951-1981) will be 98.7 million.

The same author ventures two sets of projections based on the occupational pattern reached by two countries, Japan and U.S.A., at a stage in their economic growth which will approximately correspond to that India is expected to attain in 1981. The two assumptions may be expressed as follows : 1) By 1981 the occupational pattern in India would be more or less similar to the one Japan had in 1920, 2) India would have reached a stage in her development by 1981 that U.S.A. had attained in 1920. The occupational pattern envisaged according to those models are shown in Table 40.

Using the average population projection for India and on the basis of Japanese and U.S.A. models, the occupational pattern of India's active labor force in 1981 will be as shown in

Table 40. Percent of Persons Employed in Agricultural and Non-agricultural sectors in Japan, U.S.A. and India[a]

Country	Agricultural	Non-agricultural
Japan (1920)	51.6	48.4
U.S.A. (1920)	27.0	73.0
Ivdia (1951)	71.7	28.3

[a]Rao, V.K.R.V., "Population Growth and Its Relation to Employment in India," *India's Population*,Editor, Agarwala, S.N., (London : Asia Publishing House, 1959), p. 93.

Table 41. The employment requirements caused by natural increase in the labor force (1951-1981) and the additional employment that will have to be created by 1981 will amount to 106.8 million as seen in Table 42.

Table 41. Occupational Distribution of India's Projected Labor Force, 1981[a]

Assumption used of Occupation pattern	Agriculture	Non-agriculture	Total
Japan of 1920	120.7	117.6	231.3
U.S.A. of 1920	59.5	178.8	238.3

[a]Rao, V.K.R.V., "Population Growth and Its Relation to Employment in India, *India's Population*, Editor, Agarwala, S.N., (London : Asia Publishing House, 1959), p. 94.

Table 42. Additional Employment Including Back-Log[a] 1951-1981

Model	Agriculture	Non-Agriculture	Total
Japan of 1920	26.0	80.8	106.8
U.S.A. of 1920	- 35.3	142.2	106.8

[a]Rao, V.K.R.V. "Population Growth and Its Relation to employment in India" *India's Populatiou*, Editor, Agarwala, S.N. (London : Asia Publishing House, 1959), p. 97.

The application of U.S.A. model visualizes a shift of a major portion of agricultural workers to non-agricultural occupations, but it means creation of non-agricultural employ-

ment for 142.2 million persons in thirty years which is a stupendous task. The Japanese model involves no net transfer from agricultural to non-agricultural but additional employment will have to be created for twenty-six million in the agricultural sector and for 80.8 million in the non-agricultural sector. This means that there will not be any easing of existing pressure on land but more will be exerted to the tune of twenty-six million.

On the basis of the Japanese model the creation of 80.8 million jobs will involve 64.6 billion rupees and on the basis of the U.S.A. model 113.7 billion rupees will be required. It is very doubtful whether India's economic development during the period 1951-1981 will reach a level of expansion for the creation of so many job opportunities. The outlay for all investments and expenditure, industrial, irrigation, power, agriculture and social services for the three Five Year Plans (1951-1966) is only 7.5 billion rupees. So, significant occupational changes may not be expected by 1981 if the growth of population is not controlled.

Future of Literacy

Education at all levels has made rapid strides during the period 1951-1961. Total enrollment in all educational institutions was fifty million during the academic year 1960-61 as compared to twenty-four million a decade ago. Between 1951-1961 the number of primary schools increased from two hundred thousand to three hundred thousand, secondary schools from twenty-one thousand to fifty-four thousand and the number of universities from twenty-seven to forty-three.

In spite of this seeming progress attained in education the increase in literacy rate between 1951-1961 was only 7.1 percent. In 1951 the total percentage of literacy was 16.6; 24.9 for males and 7.9 for females. In 1961 the total percentage was 23.7; 33.9 for males and 12.8 for females. The increase of 4.9 percentage points for female literacy has not been very encouraging.

The target of the Planning Commission is to provide free and compulsory education for all children by the end of the Third Five Year Plan period in 1966. It may not be possible to achieve this target at the set date due to the large expenditure involved. According to Coale and Hoover, "For the whole period 1956-1986, the extra costs of elementary education under high fertility amount to Rupees twenty to twenty-five billion," They also add "The main impact of higher fertility is in the number and proportion of children. and the additional cost attendant on a larger increase in the number of children is particularly evident in the field of education."[3] Against the rapidly growing population, indications are that the literacy rate in India may not register a marked increase by 1981 and similar difficulties confront higher education also.

Future of Level of Living

The prospects for the improvement of the level of living depend upon the growth of the Indian economy. The per capita income and consumption for the period 1950-1961 and the targets set for 1966 are given in Table 43.

Table 43. Per Capita Income and Consumption[a]

	1950-51	1960-61	1965-66 (targets)
Per Capita Income (Rupees)	284	330	385
Consumption per capita :			
Food (Calories per day)	1,800	2,100	2,300
Cloth (Yards per annum)	9.2	15.5	17.2

[a]Department of Economics and Statistics, Tata Industries Limited, *Statistical Outline of India*, 1961, (Bombay : Vora and Company, Publishers Limited, 1961), pp. 1-2.

No doubt the per capita income and the consumption per capita have recorded a rise but the improvements are very modest. The international comparisons of net food supplies per capita, 1958 and some of the level of living indicators 1959 are shown in Tables 44 and 45.

Table 44. Net Food Supplies Per Capita of Some Selected Countries, 1958[a]

Country	Cereals (as flour)	Sugar	Milk (fat)	Calories per day	Protein per day (grams)
	Kilogram per year				
India(1957)	124	14	3	1,800	47
Australia	88	51	7	3,210	92
Canada	70	44	8	3,110	95
Ceylon	119	18	1	2,050	42
Pakistan	139	14	2	1,810	43
U.K.	85	51	7	3,290	86
U.S.A.	67	41	8	3,100	91

[a]Department of Economics and Statistics, Tata Industries Limited, *Statistical Outline of India*, 1961, (Bomby : Vora and company, Publishers Limited, 1961), p. 83.

Table 45. Level of Living Indicators For Some Selected Countries, 1959[a]

Conutry	Per Capita			Passenger Cars per 10,000 population	Radio Sets per 1,000 population
	Income (Rupees)	Consumption (kilograms)			
		Energy [b]	Crud Steele		
India	302	145	9	9	4
Australia	5,691	3,684	307	1,772	223
Canada	7,621	5,606	355	2.164	554
Ceylon	560	101	7	78	27
Pakistan		56	3	6	3
U.K.	4,907	4,595	532	958	287
U.S.A.	10,708	7.834	491	3,352	948

[a] Department of Economics and Statistics, Tata Industries Limited *Statistical Outline of India*, 1961, (Bombay Vora and Company, Publishers Limited, 1961), p. 84.

[b]Coal equivalent

A comparison of India's net food supplies and some of the indicators of her level of living furnish clear evidence that she is far behind the industrialized countries listed in the tables. It will be an uphill task to effect any improvements in the level of living considering the rapidly growing population.

Future of Fertility

For 1941-50 the estimated birth rate for India was forty per thousand and the rate of natural increase was 1.25 percent per year. Between 1956-60 a higher estimate of natural increase of 1.9 percent has been recorded by the National Sample Survey as well as in the projections prepared by the Office of Population Research, Princeton University. Assuming that currently the natural increase is 1.9 percent per year, then the population is now increasing at the rate of seven million a year. With an almost stationary birth rate and rapid fall in the death rate, an accelerated growth of population can be expected during the next two decades if the growth is not arrested.

Since 1951 there is serious awareness of the population problem in India and she has undertaken to meet the crisis in two ways : 1) accelerated economic development, 2) planned population control. The economic development is being vigorously pursued by the launching of the programs of the Five Year Plans. With regard to population control, India has formulated a population policy to check population growth and stabilize it at a level consistent with the requirements of national economy.

A comprehensive family planninig program was initiated and as a first step the 1951 Census Commissioner recommended a drastic reduction of the incidence of improvident maternity. Out of every forty births which occur every year, seventeen are of this nature. Avoidance of improvident maternity will reduce India's birth rate from forty to twenty-three and death rate from twenty-seven to twenty two. Consequently there will be a reduction of the growth of population from about thirteen per-

cent to about one percent per decade.[4] Sterilization was introduced as a working hypothesis for population control, specially for the reduction of improvident maternity, and day by day it is becoming very popular particularly among the lower socio-economic classes. From 1956 to 1962 the number of persons sterilized was 182,727, of whom 100,136 were males and 82,591 were females.[5]

Family planning programs have made some contribution towards population control. During 1951-61, Madras state has registered a growth rate of 11.7 percent as compared to 14.7 per cent in 1941-51. Among the probable factors which could have contributed to this lower growth, 0.7 percent may be attributed to family Planning.[6] In discussing fertility trends in India, Chellaswami[7] points out that family limitation techniques are gradually disseminated among urban couples. On the basis of some studies, he assumes a decline of fourteen percent in fertility of rural couples and twentyfive percent of urban couples by 1976 and a reduction of eighteen percent of all India fertility rate by 1976 due to family planning programs.

Davis[8] is of the opinion that the process of the demographic transition varies from one country to another and so by planned social change in India could accelerate the process shorten the duration of the transition without undergoing the entire cycle and close the demographic gap faster than the usual

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4 *Census of India*, 1951 Vol. 1, Parts I-A and I-B, p. 217

5 "Free Sterilization Facilities," *India News*, September 3, 1962, p.2.

6 Vaidyanathan, K.E. and Gnanasekaran, K.S., "An Empirical Analysis of the Factors Contributing to a lower Growth of Population in Madras State, 1951-61," *Indian Economic Journal*, Vol. 9, No. 1 (July, 1961), p. 114.

7 Chellaswami, T., "Mortality and Fertility Trends and population Growth in India (1956-76)," *India's Population*. Editor, Agarwala, S.N., (London: Asia Publishing House, 1959). p. 80-81.

8 Davis, Kingsley, "Fertility Control and the Demographic Transition in India," *The Interrelations of Demographic, Economic and Social Problems in Selected Underdeveloped Areas*, Milbank Memorial Fund, New York, 1954, pp. 68-71.

period. He says, "There is consequently no *inevitable* reason why the demographic gap cannot be foreshortened by deliberate policy"[9]

Industrial expansion and economic development are beset with numerous obstacles particularly because India is late and would find it difficult to capture overseas markets. Vance puts it aptly when he says, "Germany found the course of industrialization harder than Britain. Japan was not able to repeat the course of European industrialization and India and China as they modernize will not find themselves in as favorable a position as Japan. The amount of demographic slack progressively lessens as industry expands all over the globe."[10]

So, of the two steps taken to meet the population crisis, it is believed that the family planning program should assume more importance. If the population policy pursued by India does not bring in the expected results, economic growth would be hampered; urbanization would not be accelerated and the impact of urbanization on fertility even by 1981 may not prove to be significant.

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9 *Ibid.*, p. 71.

10 Vance, Rupert B., "The Demographic Gap: Dilemma of Modernization Programs," *Approaches to Problems of Fertility in Agrarian Societies*, Milbank Memorial Fund, New York, 1952, p. 16

CHAPTER VII

SUMMARY AND CONCLUSIONS

The thesis has been advanced that urbanization produces a shift in occupational structure by increasing non-agricultural occupations, increases the rates of literacy and rural-urban migration and effects improvements in the level of living. The changes produced by urbanization on occupation, literacy, migration and the level of living create motivations favorable to lower fertility. Thus, it has been argued that urbanization through the intervening factors of non-agricultural occupations, literacy, migration and the level of living operates to bring about a reduction in fertility.

The specific purpose of the study has been to determine the impact urbanization has been exerting through the intervening factors on fertility in India for the period 1931-1951. Urbanization has been treated as the independent variable, fertility the dependent variable ; non-agricultural occupations, literacy, migration and level of living as the intervening variables.

In line with the reasoning adopted it could be expected that urbanization would be directly associated with the intervening variables, and the intervening variables would bear an inverse relationship to the child-woman ratio which has been used as the indicator of fertility.

Using the Indian Census data the study has undertaken to test the relationship between urbanization and the intervening variables; and that between the latter and the child-woman ratio. Applying the rank correlation method, correlations have been computed between urbanization and non-agricultural occupations, literacy and migration; and between these three intervening variables and the child-woman ratio. Correlations

could not be computed between urbanization and the level of living; and the latter and the child-woman ratio for want of required data.

On the basis of the consistent pattern indicated by the correlations the hypotheses that urbanization is positively associated with increase in non-agricultural occupations, literacy and rural-urban migration have been confirmed. With the available data on per capita income and consumption pattern, it has been possible to show that urbanization effects improvements in the level of living. The expected inverse relationship between the intervening variables and the child-woman ratio could not find support except in the case of literacy. The correlations between urbanization and the child-woman ratio did not exhibit a consistent pattern and hence the expected inverse relationship could not be confirmed. It was presumed that the degree of urbanization and the change produced by urbanization on the intervening variables have not been significant enough to produce the expected change on fertility.

The empirical studies cited were found to be in general agreement with the results of this study. The studies have further revealed the fact that an inverse relationship between the intervening variables and birth rate may possibly exist at the highest level among small groups wherein urbanization has created significant changes.

The study was handicapped by the fact that data were not available to compute actual rates of fertility. Rather it was necessary to use the child-woman ratio, a measure which reflects differences in the rates of child mortality as well as variation in fertility. Urbanization probably is accompanied by a lowering of the child mortality rate, and this in turn would tend to result in somewhat higher child-woman ratios. That is, child-woman ratios are inadequate measures in that they suggest higher fertility in cities than actually exists. This fact probably explains, at least in part, the low relationship found between urbanization and fertility (as measured by the child-woman ratio).

The future prospects of urbanization, the intervening variables, and fertility in relation to the population projections and the future economic growth of India for the next thirty years (1951-1981) have been examined. Though the future of urbanization appears bright, the rapid growth of population and the large net annual addition might create an imbalance between population and resources and hinder economic growth. If economic development be retarded, then urbanization would slacken and consequently the expected changes in the intervening variables and on fertility might not take place. So, in addition to vigorous economic development, planned population control has been suggested to arrest the rapidly growing population. The imperative necessity of closing the demographic gap and effecting an equilibrium between fertility and mortality was reiterated.

Though it has been argued and shown that urbanization is a key variable in effecting changes on fertility through the intervening variables, the rapid and abnormal growth of population seems a major obstacle in the way of the changes discussed. It is, therefore, believed that if this hindrance be removed, the pace of urbanization and its impact on fertility through the intervening variables will be more noticeable. There are also social and cultural factors which require change. The Government of India has several schemes on hand for checking the rapid growth of population as well as for producing changes in social and cultural factors which hamper progress. In addition, some practical suggestions for the implementation of a program to check the enormous growth of population are not out of place in this context.

Suggestions

1) The first and primary step could be to introduce a scheme immediately for the prompt and accurate reporting of all births and deaths even in remote rural areas. This could be strictly enforced by legislative action. No population policy

could make any headway without accurate data on vital statistics.

2) All marriages including those solemnized by priests have to be recorded and registered. This will prevent child and early marriages.

3) The Marriage Restraint Law (the Sarda Act) of 1929 which prescribed minimum age of fourteen years for girls and eighteen for boys has to be strictly enforced. This law now seems a dead letter and tradition and customary usage regarding early marriages appear to prevail. According to the 1951 Census, there were 2.8 million married males and 6.1 million married females, between the ages of five and fourteen. It was found that a rise of three years at marriage of females in India would result in a three percent decline in birth rate.

4) All couples who have not passed their reproductive period and who have three or more living children should be made to report to a family planning clinic and seek advice. This has to be made compulsory by legislative action.

Further Research

1) As the degree of urbanization increases, periodical studies along this line may be undertaken to assess its impact on fertility.

2) Empirical studies involving two selected polar type samples, one urban and another rural and using all the variables used in this study may be conducted. Different urban samples from smaller to larger agglomeration could be selected to evaluate the changes produced on fertility as a result of different degrees of urbanization.

3) A longitudinal study also can be considered though it will be a protracted scheme. A sample of recent young rural-urban migrants could be chosen and the same group could be studied after an interval of every five years to assess the changes that will be produced by urbanization in all the variables pertaining to the group. A corresponding control group of per-

sons who have remained in rural areas should be studied simultaneously so that there would be a basis for evaluating observed changes.

Significance of the Study

It is believed that the findings of this study are useful as a guide to planners and policy makers of both private and government agencies in India and other underdeveloped countries. For example, this study has indicated that literacy and the child-woman ratio have been highly inversely correlated. While literacy does not necessarily produce low fertility (see for example the United States of America), it does facilitate programs for reduction of fertility. Governments concerned with the problem of high fertility could launch massive programs for the eradication of illiteracy and for general improvement in educational levels in order to hasten acceptance of programs for the reduction of fertility.

Similar studies and their findings may eventually lead to the formulation of a demographic theory of urbanization at least with regard to economically underdeveloped, high fertility areas undergoing urbanization. Many Asian countries are experiencing the process of urbanization and with it social change is under way. This and other studies of this nature will furnish clues regarding likely trends. Such forewarnings regarding anticipated events may help countries prepare themselves for changes as well as for the impending strain.

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